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PLANTAE PAPUANAE ARCHBOLDIANAE, XV*

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With one plate

IN CONTINUATION of our work on the Rubiaceae of this series, we again present a number of genera chosen not particularly as representing any special section or relationship in the family, but rather as a matter of convenience for study at the moment. We have studied *Hydnophytum* and *Myrmecodia* in conjunction with each other, since both have in common the peculiar tuber-like base. *Borreria* has the general habit of *Hedyotis* and is easily mistaken for it; the same is true of *Mitracarpus*. The genera considered in this paper are: *Dentella, Hedyotis, Ophiorrhiza, Argostemma, Airosperma, Hydnophytum, Myrmecodia, Nertera, Borreria,* and *Mitracarpus*.

RUBIACEAE (in part)

Dentella J. R. & G. Forster

Dentella Browniana Domin, Bibl. Bot. 22(Heft 89[vii]): 1170 (616). 1929; H. K. Airy-Shaw, Kew Bull. 1934: 294. 1934.

BRITISH NEW GUINEA: Wuroi, Oriomo River, *Brass 5825,* January 1934, alt. 10 m., a clearing on a savanna (very small prostrate herb with minute white flowers). Queensland and Northern Territory.

Hedyotis Linnaeus

Hedyotis Schlechteri (Val.) comb. nov.

Oldenlandia Schlechteri Val. Bot. Jahrb. 60: 11. 1925.

Hedyotis Schlechteri var. **acuminata** (Val.) comb. nov.

Oldenlandia Schlechteri var. *acuminata* Val. Bot. Jahrb. 60: 12. 1925, Nova Guin. 14: 236. 1925.

NETHERLANDS NEW GUINEA: 6 km. southwest of Bernhard Camp, Idenburg River, *Brass 12775,* Feb. 1939, alt. 1200 m., in dense undergrowth of rain-forest gully (ascending herb 50 cm. high).

*Botanical Results of the Richard Archbold Expeditions. See Jour. Arnold Arb. 25: 183–205. 1944.

It has been a question whether to align this collection with the species or with the variety. The plant is slightly more pubescent than one of the collections cited in the original description of the species, and also the inflorescence is paniculately cymose.

Hedyotis Klossii Wernh. Trans. Linn. Soc. II. Bot. 9: 69. 1916.

NETHERLANDS NEW GUINEA: 4 km. southwest of Bernhard Camp, Idenburg River, *Brass 13212*, March 1939, alt. 850 m., rain-forest, occasional on shady stream banks (fruticose herb 30–50 cm. high; flowers white). Previously known only from the type collection.

Hedyotis decipiens (Val.) comb. nov.

Oldenlandia decipiens Val. Bot. Jahrb. 60: 12. 1925.

A very distinct species, known only from the type collection from Northeast New Guinea.

Hedyotis idenburgensis sp. nov.

Herba parva, ± 10 cm. alta, ramosa subglabra; caulibus basi lignescentibus, diffusis, interdum procumbentibus, acute tetragonis, internodiis 3–5 mm. longis, glabris; foliis oblongo-lanceolatis, 7–10 mm. longis, 2–3 mm. latis, utrinque angustatis, apice acutis, margine in sicco planis vel revolutis, nervis lateralibus utrinsecus 2 vel 3 utrinque inconspicuis vel subobscuris; petiolo brevi vix 2 mm. longo; stipulis parvis lineari-lanceolatis puberulis; pedunculis axillaribus, singulis vel oppositis, unifloris vel interdum cymosis, circiter 2 cm. longis, bracteis oppositis linearibus circiter 3 mm. longis prope apicem instructis; floribus breviter pedicellatis; ovario urceolato; calycis lobis remotis, lineari-lanceolatis, 1.5 mm. longis, erectis demum leviter divergentibus; corolla 3 mm. longa, infundibulari, fauce pubescente, lobis lanceolatis vix 1.5 mm. longis, intus pubescentibus; staminibus in medio tubo insertis, filamentis 0.6 mm. longis, antheris 1 mm. longis; stigmate exserto verisimiliter capitato; capsulis depresso-globosis calyce persistente coronatis, (incl. calyce) 3.5 mm. longis, 2.5 mm. diametro, glabris; seminibus pluribus, obtuse angulatis, sub lente leviter reticulatis.

NETHERLANDS NEW GUINEA: 4 km. southwest of Bernhard Camp, Idenburg River, *Brass 13477* (TYPE), March 1939, alt. 850 m., on mossy flood-swept banks of a stream in rain-forest (flowers white).

This species has the general habit of *Hedyotis biflora* L. The flower, however, is distinctive; the anthers are long and narrow, and the lobes of the corolla are pubescent on the upper surface; as in *H. biflora*, the throat is pubescent within. The fruit also is distinctive; the valves of the capsule do not project as in *H. biflora*, so that the calyx-lobes are much more obvious in the fruit of this species. Sometimes there are minute linear appendages or glands between the calyx-lobes.

Hedyotis Valetoniana sp. nov.

Oldenlandia coprosmoidea Valeton in Lam, Natuurk. Tijdschr. Nederl.-Ind. 89: 72, 101, 133, 134. 1929, nomen; non *Hedyotis coprosmoides* Trimen (1894).

Planta prostrata glabra; caulibus tetragonis basi lignescentibus, internodiis brevibus 2–5 mm. longis; foliis confertis, lanceolatis vel oblongo-lanceolatis, 5–15 mm. longis, 3–4.5 mm. latis, apice acutis vel acuminatis, basi anguste obtusis, crassiusculis, nervis lateralibus utrinque obscuris;

petiolis brevissimis, 1–1.5 mm. longis; stipulis in vaginam brevem connatis margine pectinatis, setulis brevibus centrali longiore linearibus acutis; pedunculis axillaribus, 1.5–4 mm. longis, apice bibracteatis, bracteis circiter 4 mm. longis, foliiformibus; floribus supra bracteas subsessilibus; ovario subcampanulato, 1.5 mm. longo; calycis lobis 2.5 mm. longis, lineari-oblongis, acutis, tubo 1 mm. longo; corolla infundibulari, 6.5 mm. longa, tubo intus glabro, fauce tantum pilosulo, lobis 3 mm. longis intus pubescentibus; staminibus in apice tubi insertis, antheris 1.5 mm. longis, ellipticis, apiculatis; stylo glabro, 4 mm. longo; stigmate bilobato, lobis circiter 0.5 mm. longis; capsulis urceolatis calyce persistente coronatis, 3 mm. longis (incl. calyce 5 mm.), 2.5 mm. diametro; seminibus obtuse angulatis sub lente reticulatis.

NETHERLANDS NEW GUINEA: Lake Habbema, *Brass 9326* (TYPE), Aug. 1938, alt. 3225 m., prostrate on sterile rocky knolls of grasslands (flowers lavender); near the foot of Doorman-top, *Lam 1610,* Oct. 1920, alt. 3250 m.

This species seems to be most closely related to *Oldenlandia nutans* Valeton; it differs in its prostrate very compact habit, fleshier leaves, and shorter corollas. Possibly a wider range of specimens would show gradations, but until such time as these are available it seems best to consider this a distinct species.

Hedyotis tenelliflora Bl. var. **papuana** (Val.) comb. nov.

Oldenlandia tenelliflora var. *papuana* Val. Nova Guin. 8: 453. 1911, ibid. 14: 234, *pl. 22, fig. A, 1–5.* 1925.

NETHERLANDS NEW GUINEA: Balim River, *Brass 11628,* Dec. 1938, alt. 1600 m., deforested slopes, common grass associate on sandy soil (flowers white). BRITISH NEW GUINEA: Mafulu, *Brass 5152,* Oct. 1933, alt. 1250 m., small roadside weed on grassy spurs; Wuroi, Oriomo River, *Brass 5830,* rare on savanna clearing. Not previously reported from Papua.

Hedyotis vestita R. Br. in G. Don, Gen. Syst. 3: 526. 1834.

Spermacoce costata Roxb. Fl. Ind. 1: 376. 1820.

Hedyotis costata (Roxb.) Kurz, Jour. As. Soc. Bengal 45(2): 135. 1876; Merr. Enum. Philip. Fl. Plants 3: 497. 1923; non *H. costata* R. Br. (1834).

Oldenlandia costata (Roxb.) Koorders, Exkurs.-Fl. Java 3: 240. 1912.

NETHERLANDS NEW GUINEA: Nasau region, *Docters van Leeuwen 10752,* Oct. 1926, alt. 700 m.

As far as we know, this is the first record of the species from New Guinea.

Hedyotis pubescens (Val.) comb. nov.

Oldenlandia pubescens Val. Nova Guin. 8: 439. 1911, ibid. 14: 233. 1925, Bot. Jahrb. 60: 10. 1925.

BRITISH NEW GUINEA: Dieni, Ononge Road, *Brass 3934,* May 1933, alt. 500 m., in shelter of roadside undergrowth; Lake Daviumbu, Middle Fly River, *Brass 7621,* in a bamboo grove. Herb 30–40 cm. tall; flowers white.

The only difference we find between Valeton's description and the specimens cited is a ring of hairs or a hairiness on the inside of the corolla just at the base of the filaments; possibly in full-blown flowers this would be just below the throat or in it. The species seems to be common, having been reported from both Netherlands New Guinea and Northeast New Guinea.

Hedyotis congesta R. Br. in G. Don, Gen. Syst. 3: 526. 1834.

Metabolos rigidus Bl. Bijdr. 992. 1826.

Hedyotis rigida (Bl.) Miq. Fl. Ind. Bat. 2: 181. 1857, non Walp. (1852).
Oldenlandia rigida (Bl.) Val. Nova Guin. 8: 438. 1911.

Hedyotis congesta R. Br. var. **longifolia** (Val.) comb. nov.
Oldenlandia rigida var. *longifolia* Val. Nova Guin. 8: 438. 1911, ibid. 14: 234. 1925.

NETHERLANDS NEW GUINEA: East slopes of Cyclops Mountains, *Brass 8926,* June 1938, alt. 450 m., occasional in forest undergrowth; 4 km. southwest of Bernhard Camp, Idenburg River, *Brass 13626,* March 1939, alt. 850 m., occasional in rain-forest (shrub 1 m. high; branches weak, spreading, fruit white). BRITISH NEW GUINEA: Wuroi, Oriomo River, *Brass 5691,* plentiful about borders of rain-forest and in small forest clumps on savannas (shrub about 1.5 m. tall with slender spreading branches; leaves glaucous above, pale and scaberulous beneath; flowers lavender-colored; soft, white, uneven fruit 5–7 mm. diameter); Tarara, Wassi Kussa River, *Brass 8426,* abundant in rain-forest and savanna-forest contact areas (herbaceous shrub 1–1.5 m. high; leaves glaucous above; flowers bluish white).

Valeton mentions the very characteristic white fruit; and Ridley believes the fleshy white fruit is unique in the genus.

Hedyotis Lapeyrousii DC. Prodr. 4: 420. 1830; Rich. Voy. Astrol. Bot. 2: 64. *pl. 23.* 1834.
Hedyotis auricularia var. *melanesica* Fosb. Bull. Torr. Bot. Cl. 67: 419. 1940.

NETHERLANDS NEW GUINEA: Bernhard Camp, Idenburg River, *Brass 13762,* April, alt. 60 m., in gravelly bed of foothill stream, rare. BRITISH NEW GUINEA: Daru Island, *Brass 6435,* common in rain-forest, gregarious in patches; Palmer River, 1 mile above junction Black River, *Brass 6941,* plentiful on a riverbank landslip; Lake Daviumbu, Middle Fly River, *Brass 7772,* massed in old clearings. SOLOMON ISLANDS: San Cristoval: Waimamura, *Brass 2621,* pathways and small clearings in lowland rain-forests, common.

This material appears to be identical with that from the New Hebrides as illustrated in the above-cited plate, and also with that described by Fosberg as a variety of *H. auricularia* L. Unfortunately we have no authentic material of the latter species for comparison; the collections which have been assigned to it have definitely smaller flowers than the Papuasian material. This also seems to be very close to, if not identical with, the material passing in New Guinea as the Linnaean species. The original was collected in Ceylon.

Hedyotis radicans (DC.) Miq. Fl. Ind. Bat. 2: 181. 1857; Merr. Enum. Philip. Fl. Pl. 3: 499. 1923.
Metabolos radicans DC. Prodr. 4: 435. 1830.
Oldenlandia radicans O. Kuntze, Rev. Gen. 1: 292. 1891.

BRITISH NEW GUINEA: Dieni, Ononge Road, *Brass 3974,* May 1933, alt. 500 m., plentiful in a bamboo plantation (ascending herb with white flowers); Tarara, Wassi Kussa River, *Brass 8503,* rain-forest ground cover, associated with *Scleria lithosperma* Sw. in broken shade.

These collections seem to agree reasonably well with the Philippine material of this species at hand.

Hedyotis novoguineensis sp. nov.

Herba adscendens vel erecta vel decumbens, 30–50 cm. alta, basi perennis; caulibus argute quadrangulatis, minute pilosulis vel glabratis, 1–2 mm. crassis, foliosis, sparsim ramosis vel simplicibus, internodiis 1–6 cm. longis; foliis lanceolatis vel ellipticis, utrinque aequaliter angustatis, apice acutis, basi acutis vel cuneatis, margine in sicco interdum revolutis, 1.5–3.5(–4)

cm. longis, 0.5–1(–2) cm. latis, supra glabris vel sparsim pilosulis, subtus hirtellis, nervis lateralibus utrinsecus 3, supra obscuris, subtus inconspicuis; petiolo 2–5 mm. longo, pubescente; stipulis ovatis, hirtellis, apice subulatis, superioribus margine subpectinatis vel glandulosis; floribus glomerulatis, axillaribus, densis, subsessilibus vel glomerulo pedunculato, bracteatis, bracteis ovario brevioribus; ovario obconico, vix 1.5 mm. longo, piloso; calycis lobis 1.5 mm. longis, lanceolatis, acutis, recurvis, pilosis et ciliatis; corollae tubo 2.5 mm. longo, extus glabro, fauce dilatato, intus pilosulo, lobis circiter 1 mm. longis, ovatis, extus sparsim intus densiuscule pilosulis; staminibus in fauce tubi insertis, antheris paulo exsertis; stylo glabro, 3 mm. longo; stigmate exserto; capsulis globosis, vix 2 mm. diametro, calycis lobis persistentibus recurvis coronatis, septicidaliter dehiscentibus; seminibus angulatis reticulatis, nigris.

BRITISH NEW GUINEA: Wuroi, Oriomo River, *Brass 5831* (TYPE), Jan. 1934, alt. 10 m., small savanna clearing (plant with pale purple flowers); Gaima, Lower Fly River (east bank), *Brass 8339*, Nov. 1936, scrambling amongst grass in dense savanna-forest (flowers white).

This species has the general habit of *Hedyotis stipulata* R. Br., but the calyx-lobes are narrower, pilose, and ciliate, and in fruit much less conspicuous than in *H. stipulata* R. Br.

Hedyotis glomerulata sp. nov.

Herba erecta, circiter 50 cm. alta glabra, basi probabiliter perennis; caulibus argute quadrangulatis, circiter 2 mm. crassis, foliosis, internodiis 2.5–4.5 cm. longis; foliis ellipticis, 2–3.5 cm. longis, 0.8–1.5 cm. latis, obtuse acutis, basi paulo angustatis, margine praecipue versus basim revolutis, nervis lateralibus utrinsecus 3, supra manifestis, subtus subprominulis, supra olivaceis, subtus pallidioribus; stipulis late ovatis breviter vaginantibus, apice breviter subulatis, superioribus margine pectinatis vel glandulosis; petiolo brevissimo vel foliis subsessilibus; floribus glomerulatis, axillaribus, densis, sessilibus, basi bracteatis; ovario obconico, 1.5 mm. longo glabro; calycis lobis oblongo-lanceolatis, ciliatis, 2 mm. longis; corollae tubo 2.5 mm. longo, fauce pubescente, lobis ovatis obtusiusculis ± 1 mm. longis, intus pubescentibus; antheris in apice tubi insertis, inclusis; stylo glabro, 2.5 mm. longo; stigmate subexserto; capsulis elongato-globosis, circiter 2 mm. diametro, calycis lobis recurvis coronatis, tarde septicidaliter dehiscentibus; seminibus pluribus angulatis reticulatis nigris.

BRITISH NEW GUINEA: Mafulu, *Brass 5315* (TYPE), Oct. 1933, alt. 1250 m., common amongst tall grass of deforested spurs (flowers white).

This species is very closely related to *Hedyotis novoguineensis*. It may be distinguished by its generally glabrous character; the calyx-lobes are ovate and ciliate, rather than lanceolate, and are slightly larger than in *H. novoguineensis*, and the capsules are a little more elongate and glabrous.

Hedyotis trichoclada sp. nov.

Herba parva perennis repens pubescens; caulibus dense pubescentibus vel breviter pilosis, internodiis 2–5 mm. longis; foliis 2.5–6 mm. longis, 1–3 mm. latis, ovatis, apice acutis vel obtusiusculis, basi obtusis, margine in sicco interdum revolutis, supra glabris vel prope marginem sparsim

pilosis, subtus consperse pilosis vel glabris, margine ciliatis vel glabris, nervis lateralibus utrinsecus plerumque 2, supra inconspicuis, subtus manifestis; petiolo 1 mm. longo pubescente; stipulis connatis minutis obtuse ovatis, margine glandulosis; floribus solitariis axillaribus, pedunculis 0.5 mm. longis; ovario 1 mm. longo, campanulato, dense patenti-piloso; calycis lobis lineari-lanceolatis, vix 1.5 mm. longis, sinu lato, glandulis interjectis; corollae tubo 2.5–3 mm. longo utrinque glabro, lobis ovatis, 1 mm. longis, intus puberulis; staminibus in apice tubi insertis, antheris exsertis; stylo vix 1.5 mm. longo glabro; stigmate bilobo, lobis linearibus, 1 mm. longis; fructibus globosis, circiter 2 mm. diametro, calycis lobis coronatis; seminibus numerosis, angulatis, reticulatis, brunnescentibus.

NETHERLANDS NEW GUINEA: Lake Habbema, *Brass 9197* (TYPE), Aug. 1938, alt. 3225 m., matted on sandy banks of grassland stream (flowers white); 11 km. northeast of Wilhelmina-top, *Brass & Myer-Drees 9752*, Sept. 1938, alt. 3400 m., in wet grassy valley (flowers white, sometimes faintly violet, anthers dark violet).

Although the habit of this plant suggests *Anotis* DC., it has all the characters of *Hedyotis* L. There are about 25 to 30 seeds in the fruit.

Hedyotis nana sp. nov.

Herba parva perennis repens pubescens; caulibus implicatis dense patenti-pubescentibus, 1 mm. diametro, internodiis 2–5 mm. longis; foliis usque 4 mm. longis, 2.5 mm. latis, elliptico-ovatis vel subrotundatis, apice obtusiusculis, basi rotundato-cuneatis, crassiusculis, supra convexis, sub lente minutissime et profuse papillosis, glabris vel consperse pilosis, subtus concavis patenti-pilosis et cystolithis praeditis, nervis lateralibus utrinsecus 2, utrinque obscuris; petiolo 1 mm. longo, patenti-pubescente; stipulis inconspicuis, connatis, margine glandulosis; floribus solitariis, axillaribus, subsessilibus; ovario vix 1.5 mm. longo, dense patenti-piloso; calycis lobis ellipticis utrinque angustatis, acutiusculis, extus patenti-pilosis, intus minutissime papillosis, sinu lato, glandulis interjectis parvis; corolla in alabastro versus apicem sparsim pilosa; corollae tubo circiter 2 mm. longo, lobis 1 mm. longis, obtuse triangularibus; staminibus in apice tubi insertis; antheris subexsertis; stylo glabro brevi; stigmate bilobato; fructibus subglobosis, calycis lobis coronatis; seminibus numerosis, angulatis, reticulatis, nigris.

BRITISH NEW GUINEA: Murray Pass, Wharton Range, *Brass 4691* (TYPE), Aug. 1933, alt. 2840 m., very plentiful in small flat masses on burnt grasslands (plant has strong odor of turnips; flowers white); Mount Albert Edward, southwestern slopes, *Brass 4394*, July 1933, alt. 3680 m., prostrate on wet bank of a small grassland stream (flowers pink).

Hedyotis nana and *H. trichoclada* are closely allied, the flowers differing chiefly in the pubescence and texture of the calyx-lobes; in the former there is a sparse pilosity on the upper part of the corolla. The species are readily distinguished by the leaves; although in both species these are very small, in *H. nana* they appear to be thicker in texture, are strongly concavo-convex, and on the upper surface under a good lens are very minutely but densely papillate; in *H. trichoclada* they are thinner in texture and lack the papillate surface of the other species. They are readily distinguished from the other species of *Hedyotis* in this region by their prostrate habit and minute leaves.

Ophiorrhiza Linnaeus

Ophiorrhiza sylvatica sp. nov.

Herba ± 30 cm. alta; caulibus decumbentibus nodis inferioribus radicantibus, novellis crispe pubescentibus, inconspicue angulatis vel compressis; foliis plerumque subaequalibus, lanceolatis, pergamaceis, in sicco supra olivaceis, subtus pallidioribus, apice sensim acutis, basi rotundato-cuneatis vel acutis, 2.5–6 cm. longis, 0.7–1.6 cm. latis, nervis lateralibus utrinsecus 8–10 supra inconspicuis, subtus prominulis, reticulo laxo; petiolo 5–10 mm. longo; stipulis filiformibus caducis, circiter 3 mm. longis; inflorescentiis terminalibus vel in axillis superioribus, pedunculatis, pedunculo 5–10 mm. longo, glabro; ramis subdivaricatis basi bracteatis, bracteis parvis filiformibus; floribus glabris breviter pedicellatis, subsecundis, minute bracteatis, ad anthesin 6 mm. longis; pedicellis 0.5–1 mm. longis; calyce cum ovario 1.5 mm. longo, dentibus vix 0.5 mm. longis; corollae tubo 3 mm. longo, intus circiter medio adpresse piloso (pilis erectis), sursum puberulo vel subglabro, lobis ovatis circiter 1 mm. longis prope apicem dorso calcaribus falciformibus 1 mm. longis praeditis; flore longistylo: antheris subtus medio tubo, filamentis brevissimis, vix 0.5 mm. longis, stylo glabro, subexserto; stigmate bilobato; flore brevistylo: antheris subexsertis, 1.5 mm. longis, linearibus, filamentis 2 mm. longis subtus medio insertis; stylo 2 mm. longo, glabro; capsulis anguste transverse oblongis, circiter 5 mm. latis, vix 1.5 mm. altis secus ramos subsecundis, breviter pedicellatis.

British New Guinea: Fly River, 528 mile Camp, *Brass 6765* (type), May 1936, alt. 80 m., plentiful amongst rotting wood and leaves in openings made by fallen trees.

This species is most closely related to *Ophiorrhiza palustris* Val.; it differs in having smaller subequal leaves, glabrous inflorescence, and smaller fruits. It also grows in a different habitat. The plant has both long- and short-styled flowers; in the long-styled flowers the stamens are on very short filaments very close to the base of the tube, the tips of the anthers just reaching the pilose ring approximately in the middle of the corolla-tube on the inside; in the short-styled flowers, the anthers are partly exserted, the filaments being attached at the pilose ring. A rather unusual combination of the characters is the glabrous peduncle and inflorescence developing at the apex of a branchlet covered by crisp short brown hairs; the corolla is conspicuously corniculate.

Ophiorrhiza longisepala sp. nov.

Herba ± 30 cm. alta; caulibus adscendentibus vel suberectis, versus apicem crispe pubescentibus, subrotundatis, internodiis 3–5 cm. longis vel versus apicem brevioribus; foliis ad nodos inaequalibus, majoribus 8–12 cm. longis, 2.7–4 cm. latis, minoribus 2–6.5 cm. longis, 0.7–2.3 cm. latis, ellipticis (interdum leviter ovatis), utrinque angustatis, apice acuminatis, basi acutis, tenuiter pergamaceis, in sicco olivaceis glabris, subtus pallidioribus, costa et nervis et venis minute pubescentibus; nervis lateralibus utrinsecus 7–12, supra manifestis, subtus prominulis, venis interspersis inconspicuis; petiolo 1–2.5 cm. longo, minute pubescente; stipulis filiformibus usque 9 mm. longis; inflorescentiis terminalibus subcorymbosis, circiter 2 cm. latis in fructu, pedunculatis, pedunculo 4(–10 in fructu) mm.

longo, crispe pubescente, ramosis, ramis 3 vel 4, brevibus, paucifloris; bracteis filiformibus; floribus pedicellatis, pedicello 1–2(–4 in fructu) mm. longo; ovario minute pubescente, obconico-urceolato, 1.5 mm. alto; calycis lobis lineari-filiformibus 2–2.5 mm. longis, in sicco apice recurvis; corolla in alabastro oblonga, parte inferiore puberula, tubo intus glabro, fauce barbato, lobis cristatis, intus papilloso-puberulis; staminibus circiter medio tubo insertis, antheris inclusis; stylo glabro, stigmaticis lobis linearibus acutis; capsulis 7 mm. latis, 3 mm. altis, calycis lobis persistentibus coronatis, puberulis.

NETHERLANDS NEW GUINEA: 15 km. southwest of Bernhard Camp, Idenburg River, *Brass 12251* (TYPE), January 1939, alt. 1750 m., plentiful in rain-forest gullies.

This collection at once suggested *Ophiorrhiza rivularis* Val. on account of the very long almost filiform calyx-lobes; however, it is less pubescent; the leaves are larger with about twice as many lateral veins; the inflorescences are pedunculate rather than sessile; the throat of the corolla is barbate rather than glabrous, and the anthers are included. It is very readily distinguished by the calyx-lobes, which are persistent in fruit.

Ophiorrhiza nerteriformis sp. nov.

Herba prostrata nodis radicans; caulibus subtetragonis vel compressis, novellis pubescentibus, internodiis 5–10 mm. longis; foliis parvis, 5–7 mm. longis, 3–6.5 mm. latis, leviter inaequalibus vel aequalibus, ovatis, acutis vel acutiusculis, basi rotundatis deinde brevissime cuneatis, margine interdum crispulis, supra glabris olivaceis, subtus pallidioribus, costa nervisque pubescentibus, nervis lateralibus oblique patentibus arcuatis, utrinsecus 4 vel 5 supra manifestis, subtus prominulis; reticulo subtus manifesto; petiolo circiter longitudinem folii aequante, pubescente; stipulis filiformibus 1–1.5 mm. longis; inflorescentiis saepissime terminalibus, pedunculo saepe trifloro, usque 1 cm. longo, pubescente, apice lineari-bracteato; floribus pedicellatis, pedicellis vix 2 mm. longis; flore extus paulo puberulo; ovario obconico, vix 1 mm. longo; calycis lobis vix 1 mm. longis, lineari-lanceolatis; corolla in alabastro 5-costata, costa cristata, corollae tubo 3 mm. longo, intus in dimidio superiore piloso, lobis 1.5 mm. longis, cristatis, crista apice latiore; staminibus in parte inferiore insertis, filamentis longis, antheris exsertis; stylo brevi; capsulis 3.5 mm. latis, 1.5 mm. altis, minute pubescentibus.

BRITISH NEW GUINEA: Kurandi, Eastern Division, *Brass 1445* (TYPE), May 1925, prostrate herb in dense masses on forest floor.

This species seems to approach the description of *Ophiorrhiza tenelliflora* Val., but the latter is a larger plant in all its parts, the petals are corniculate, and the stamens are inserted at the base of the corolla and included. In *O. nerteriformis* the flower-bud is five-crested, the crests narrowing down along the five ribs of the bud, the stamens are exserted, and although the filaments may extend to the base of the corolla, they are apparently free only about two-thirds of the length of the corolla-tube. This specimen was previously reported as *Nertera depressa* var. *papuana* Val., in a genus to which it could not possibly belong.

Ophiorrhiza tafaensis sp. nov.

Planta 20–40 cm. alta; caulibus ascendentibus, novellis crispe pubes-

centibus, pauciramosis, subteretibus vel leviter angulatis, internodiis 2–7 cm. longis, inferioribus superioribus longioribus; foliis leviter inaequalibus, 2.5–11 cm. longis, 1.3–3 cm. latis, ellipticis interdum lanceolatis, basi rotundatis et abrupte cuneatis, apice acutis, in sicco supra atro-fuscis glabris, subtus pallidioribus fere cinereis, costa et nervis minute pubescentibus, nervis lateralibus utrinsecus 7–12 supra manifestis, subtus perspicuis, venis interspersis; petiolo crispe puberulo, 4–10 mm. longo; stipulis filiformibus, caducis; inflorescentiis terminalibus et axillaribus, pedunculatis, pedunculo 5–10 mm. longo in fructu usque 2 cm., ramosis, ramis 2 vel 3, paucifloris; floribus breviter pedicellatis; ovario 1.5 mm. longo obconico-urceolato, puberulo; calycis lobis lanceolatis, acutis, vix 1 mm. longis; corolla in alabastro 5-costata, costa anguste alato-cristata, tubo 3.5 mm. longo, extus consperse puberulo, intus prope medio inter antheras piloso, lobis circiter 2 mm. longis intus papilloso-puberulis, extus anguste cristatis; antheris linearibus, 1.5 mm. longis, circiter medio tubo insertis; stylo brevi; stigmate bilobato, lobis linearibus stylum subaequantibus; capsulis 9 mm. latis, 3 mm. altis, puberulis.

BRITISH NEW GUINEA: East Mount Tafa, *Brass 4133a,* May 1933, alt. 2100 m., small roadside herb, fairly common (plant purple-tinged; flowers white); Mavi, Mount Tafa Range, *Brass 4985* (TYPE), Sept. 1933, alt. 2225 m., plentiful on shaded road-banks (fleshy small herb with wrinkled leaves, very pale beneath; stems, petioles, and peduncles red; flowers very pale pink).

In the compact inflorescence, the size of the leaves, and probably the general habit of the plant, this species suggests *Ophiorrhiza montisschraderi* Val.; it may be readily distinguished from the latter by floral characters. The corolla-lobes of the latter species are corniculate and the throat is densely barbate; in *O. tafaensis* the corolla-lobes are crested, the crests extending down along the middle of the lobes like very narrow wings, and the corolla has a band of hairs below the throat immediately back of the anthers.

Ophiorrhiza callianiha sp. nov.

Planta usque 1 m. alta; ramulis glabris, internodiis 1.5–6 cm. longis; foliis ad nodos subaequalibus vel leviter inaequalibus, 7.5–17 cm. longis, 2.5–6.5 cm. latis, chartaceis, ellipticis vel lanceolatis, apice acuminatis, acumine 1–1.5 cm. longo, basi cuneatis vel rotundato-decurrentibus, supra atrofuscis, glabris, subtus pallidioribus, nervis puberulis, nervis lateralibus utrinsecus 10–13 patenti-adscendentibus arcuatis utrinque prominulis; petiolo 1–2.5 cm. longo; stipulis brevibus filiformibus caducis; inflorescentiis terminalibus longe pedunculatis, pedunculo 4.5(–8 in fructu) cm. longo, glabro, 6 cm. latis, 3 cm. altis, ramosis, ramis 3 vel 4 plerumque dichotomis paucifloris; floribus primum laxe fasciculatis deinde subsecundis; ovario fere 2 mm. longo, puberulo; calycis lobis ovatis, acutiusculis, 1 mm. longis; corolla in alabastro tubulata vel sub anthesin apice (lobis) ovali, extus glabra, apice 5-costato, costa crassa, anguste cristata; corollae tubo 1.2–1.4 cm. longo, fauce villoso, lobis 4 mm. longis, oblongo-ovatis, intus glabris, extus cristatis; staminibus 3–4 mm. supra basim tubi insertis, filamentis liberis 1 mm., antheris 3 mm. longis, linearibus; stylo glabro, 1.4–1.6 cm. longo; stigmaticis lobis ovatis; capsulis glabris, 8–9 mm. latis, 4 mm. altis.

SOLOMON ISLANDS: Bougainville: Kugumaru, Buin, *Kajewski 1957* (TYPE),

July 1930, alt. 150 m., rain-forest (small roadside plant up to 1 m. tall; flowers white, very showy).

The distinctive feature of this species is the rather large flower with long corolla-tube, slightly crested lobes, villous throat, and glabrous style; nevertheless, it does not compare in size with the flower of some of the Polynesian and Melanesian species.

Ophiorrhiza solomonensis sp. nov.

Planta usque 1.5 m. alta; ramulis ultimis glabris, compressis; foliis ad nodos leviter inaequalibus, 11–17 cm. longis, 5–6.5 cm. latis, tenuiter chartaceis, ellipticis, apice subabrupte acuminatis, basi obtusis vel rotundato-cuneatis, in sicco utrinque olivaceo-viridescentibus, glabris, nervis lateralibus utrinsecus circiter 12 utrinque perspicuis; petiolo 1–3.5 cm. longo, glabro; stipulis cito caducis; inflorescentiis terminalibus pedunculatis, pedunculo 2–6 cm. longo, puberulo, ramosis, ramis 3–5 vulgo dichotomis, paucifloris; floribus breviter pedicellatis, pedicello 1–2 mm. longo; ovario vix 1 mm. longo, puberulo; calycis lobis 0.5 mm. longis, lanceolatis; corolla in alabastro clavata, 1 cm. longa, apice leviter carinata; corollae tubo glabro, 6 mm. longo, fauce ± villoso, lobis 5 mm. longis, lanceolato-ellipticis; staminibus circiter tubo medio insertis, filamentis 4 mm. longis, antheris 2 mm. longis, exsertis; stylo brevi, 2 mm. longo, glabro; stigmate bifido, lobis linearibus 2 mm. longis, inclusis; capsulis non visis.

SOLOMON ISLANDS: Guadalcanal: Ululolo, Tutuve Mountain, *Kajewski 2656* (TYPE), June 1931, alt. 1200 m., rain-forest (a shrub up to 1.5 m. high, with white flowers).

In this species the texture of the corolla is thinner and more delicate than in any of the others of the genus which we have examined, and the lobes are about as long as the tube. In the dried specimen the leaves also are very thin and brittle; they tend to be larger and are glabrous, although under high magnification there are minute granules or cystoliths(?) scattered over the lower surface.

Ophiorrhiza decipiens sp. nov.

Planta usque 50 cm. alta, ± erecta; caulibus suberectis, novellis dense puberulis, compressis, internodiis 2–4.5 cm. longis; foliis ad nodos inaequalibus, majoribus 7–11 cm. longis, 3–4.5 cm. latis, minoribus 3–6 cm. longis, 1–2.5 cm. latis, anguste ellipticis vel lanceolatis, apice acutis, basi cuneatis, tenuiter pergamaceis, in sicco supra olivaceis glabris, subtus pallide brunnescentibus, costa nervisque puberulis; nervis lateralibus utrinsecus 6–10, supra manifestis, subtus perspicuis, venis et reticulo laxo manifestis; petiolo 5–20 mm. longo, puberulo; stipulis singulis vel bifidis, filiformibus, 7 mm. longis; inflorescentiis saepissime terminalibus totis dense puberulis, 3 cm. latis, cum pedunculo 4 cm. longis, ramosis, ramis ultimis 2- vel 3-floris; floribus breviter pedicellatis, subsecundis; ovario circiter 1 mm. longo; calycis lobis ovatis, 0.5 mm. longis; corollae lobis 1.5–2 mm. longis, breviter corniculatis, cornu 1.5 mm. longo, trigono; flore longistylo: corollae tubo circiter 4 mm. longo, fauce dense barbato; staminibus circiter medio tubo insertis, antheris inclusis, 1.5 mm. longis; stylo 4 mm. longo, parce piloso; flore brevistylo: corollae tubo 4 mm. longo, intus 1 mm. supra basim sursum piloso, fauce non barbato; staminibus circiter medio tubo insertis, antheris exsertis; stylo 2 mm. longo, sparsim piloso; capsulis 5 mm. latis, 2 mm. altis, puberulis.

BRITISH NEW GUINEA: Dieni, Ononge Road, *Brass 3877* (TYPE in Herb. New York Bot. Gard.), April 1933, alt. 500 m., rain-forest floor, common (fleshy undershrub or herb up to 50 cm. high; stem and petioles purplish; flowers white).

Among the species of this genus already described, this one most closely approaches *Ophiorrhiza Lauterbachii* Val.; in *O. decipiens*, however, the stipules are not subpersistent, the plant is for the most part covered with a very short close pubescence, and the relative length of the corolla-tube and its lobes is different, in our species the lobes being about one half the length of the tube, while in Valeton's species they are longer than the corolla-tube. The two plants we have at hand show heterostyly, although the difference in the pubescence within the corolla-tube in the two types of flowers was not anticipated; the long-styled flower has a densely villous throat, the other has a diffuse pilosity extending down the tube.

Ophiorrhiza straminea sp. nov.

Planta usque 1.5 m. alta; ramulis glabris, compressis vel obtuse angulatis, internodiis 1.5–7 cm. longis; foliis ad nodos leviter inaequalibus, majoribus 11–17 cm. longis, 3.5–5.5 cm. latis, minoribus 5.5–10 cm. longis, 3–4 cm. latis, tenuiter chartaceis, utrinque glabris, in sicco supra olivaceis, subtus leviter pallidioribus, nervis lateralibus utrinsecus 11–17 utrinque prominulis, reticulo laxo subtus manifesto; petiolo 1–3 cm. longo; stipulis filiformibus, caducis; inflorescentiis terminalibus et axillaribus, pedunculatis, pedunculo 1.5–2 cm. longo, glabro vel puberulo, ramosis, ramis 3 vel 4 plerumque dichotomis, puberulis, circiter 6- vel 7-floris; floribus subsecundis; alabastro truncato, apice 5-plicato, medio sursum leviter dilatato; ovario dense puberulo, campanulato, 1.5 mm. longo; corolla glabra, tubo 4 mm. longo, ostio dense villoso, lobis 2.5 mm. longis, basi 1.5 mm. latis, acutiusculis, intus papilloso-puberulis, extus sub apice trigono-corniculatis; staminibus 1 mm. supra basim tubi insertis, antheris circiter 2 mm. longis; stylo 6 mm. longo, sparsim pilosulo; capsulis glabris, 6 mm. latis, 2 mm. altis.

SOLOMON ISLANDS: Bougainville: Kupei Gold Field, *Kajewski 1729* (TYPE), April 1930, alt. 1000 m., rain-forest (plant up to 1.5 m. tall; flowers cream).

This species perhaps is closest to *Ophiorrhiza Mungos* Linn. as described by Valeton in Ic. Bogor. 4: *t. 385*. 1914; it differs in being a more nearly glabrous plant, with shorter peduncles, and with corolla-lobes having a small trigonous crest or appendage.

Ophiorrhiza leptophylla sp. nov.

Planta usque 1.5 m. alta, herbacea, ramosa; ramulis crispe pubescentibus, compressis vel subangulatis; foliis 5–16 cm. longis, 2.5–7 cm. latis, tenuiter pergamaceis, ovatis vel ellipticis, apice subabrupte vel sensim acuminatis, basi rotundatis deinde breviter cuneatis, subaequalibus, supra consperse scabridulis vel crispe pubescentibus, subtus costa nervisque crispe pubescentibus, novellis lamina etiam crispe pubescente, margine interdum ciliatis, nervis lateralibus utrinsecus 9–16 utrinque prominulis, reticulo subconferto, distincte manifesto; petiolo 5 mm.(sub inflorescentia) — 5.5 cm. longo, crispe pubescente; stipulis anguste triangularibus, apice filiformibus, crispe pubescentibus; inflorescentiis 1 cm. altis, 1.5–2 cm. latis, saepissime terminalibus, interdum axillaribus, breviter pedunculatis, pedunculo 5–8 mm. longo, ramosis, ramis 3–5 subfastigiatis, non divaricatis, floribus con-

fertis, pedicellis brevissimis; ovario subgloboso, 1 mm. longo, dense pubescente; calycis lobis anguste lanceolatis acutis, vix 1.5 mm. longis; corolla in alabastro tantum 6 mm. longa, probabiliter infundibuliformi, oblanceolata, extus dense et crispe pilosula, intus 1.5 mm. supra basim (sursum 2 mm.) villosa (probabiliter faucem includente), apice 5-corniculata, calcare 0.8 mm. longo; staminibus in fauce insertis, antheris 1.5 mm. longis; stylo circiter 2 mm. longo, stigmate bilobato, lobis linearibus, 1.5 mm. longis; capsulis 5 mm. latis, 2 mm. longis, crispe pubescentibus.

SOLOMON ISLANDS: Bougainville: Koniguru, Buin, *Kajewski 2035* (TYPE), Aug. 1930, alt. 850 m., common, growing close to the water (plant very fleshy, up to 1.5 m. tall; petals crystal white, young buds covered with green hair; fruit green).

Ophiorrhiza leptophylla has the same general habit as *O. trichoclada*, but it is readily distinguished by the thinner somewhat scabrid leaves, as well as by the short-peduncled and compact inflorescences and infructescences; the fruits are much more pubescent, and the stipules are not bifid.

Ophiorrhiza Valetonii nom. nov.

Ophiorrhiza nervosa Valeton, Bot. Jahrb. 60: 33. 1925, non Ridley (1912).

Known only from the Kani Mountains, Northeast New Guinea.

Ophiorrhiza trichoclada sp. nov.

Planta usque 1.5 m. alta, ramosa; ramulis crispe pubescentibus, internodiis superioribus 3–10 cm. longis, subtetragonis vel compressis; foliis 7–12 cm. longis, 3.5–7 cm. latis, pergamaceis, elliptici vel late ellipticis, apice subabrupte acuminatis, basi rotundatis deinde brevissime cuneatis, subaequalibus, supra atro-fuscis, glabris vel consperse minute pubescentibus, subtus brunnescentibus, costa nervisque pubescentibus, nervis lateralibus utrinsecus 13–15 utrinque subprominulis, reticulo laxo, manifesto; petiolo 0.8 mm. (sub inflorescentia) — 3 cm longo, pubescente; stipulis 5 mm. longis, profunde bifidis, apice filiformibus, ± pubescentibus; inflorescentiis 4.5–5.5 cm. latis, 2–3 cm. altis, terminalibus, longe pedunculatis, pedunculo 5(ad anthesin) — 9 cm.(in fructu) longo, crispe et dense pubescente, ramosis, ramis ± divaricatis, subverticillatis, iterum ramosis, in ultimis ramulis floribus subsecundis, breviter pedicellatis, pedicello 1 mm. longo, minute bracteatis; tota flore extus minute et crispe pubescente; ovario obconico 1 mm. longo; calycis lobis 1 mm. longis, lineari-lanceolatis; corolla in alabastro late clavata, carinata, carinis irregulariter dentatis; corollae tubo 4.5 mm. longo, fauce dense villoso, pilis exsertis, ceterum glabro, lobis oblongo-ovatis, 2 mm. longis, apice incurvis, intus minute puberulis, dorso carinatis, carina prominente; staminibus 1 mm. supra basim tubi insertis, antheris 1.5 mm. longis, linearibus; stylo longo, consperse pilosulo; stigmate capitato, lobis inconspicuis; capsulis 6 mm. latis, 3 mm. altis, minute et consperse pubescentibus.

SOLOMON ISLANDS: Bougainville: Kupei Gold Field, *Kajewski 1778* (TYPE), April 1930, alt. 1000 m., rain-forest, common (plant up to 1.5 m. tall, growing in the shade, particularly on old roads; stem covered with light hair; flowers white; fruit brown-purple).

This species is suggestive of *Ophiorrhiza amoena* Val. from the Bismarck Archipelago. In the latter species the leaves are oblong-lanceolate and glabrous; the inflorescence is more compact, and the flowers are secund along the ultimate branchlets rather than crowded as if fasciculate.

Ophiorrhiza crispa sensu Valeton, Nova Guin. Bot. 14: 237. *t. 24, fig. B, 1, 2.* 1925; **an** *O. crispa* Lauterb. in K. Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee, Nachtr. 392. 1905?

BRITISH NEW GUINEA: Dieni, Ononge Road, *Brass 3985,* May 1933, alt. 500 m., rain-forest floor.

The collection cited above appears to belong without question with the material pictured and described by Valeton. All these collections are from relatively low altitudes. Whether they are conspecific with the original specimen, collected at 1800 m. in the Bismarck Mountains, is not clear to us from the original description.

Ophiorrhiza glabrifolia Valeton, Bot. Jahrb. 60: 27. 1925.

NETHERLANDS NEW GUINEA: 4 km. southwest of Bernhard Camp, Idenburg River, *Brass 13059,* March 1938, alt. 850 m., rain-forest, on sandy flood-banks of river; Bernhard Camp, Idenburg River, *Brass 13738A,* April 1939, alt. 570 m., common ground herb in rain-forests of mountain slopes. Described from Northeast New Guinea.

Ophiorrhiza rupestris Hemsley, Kew Bull. 1894: 212. 1894.

Ophiorrhiza insularis Valeton in Gibbs, Phytog. and Fl. Arfak Mountains 220. 1917, Nova Guin. Bot. 14: 238. *t. 15, fig. A, 1–3.* 1925.

SOLOMON ISLANDS: Ulawa: Coast, *Erass 2943,* October 1932, amongst blocks of coral limestone, common (leaves very pale beneath; flowers white); Kulambangra: Seashore, *Herre 154,* April 1929 (suffrutescent plant about 30 cm. tall; flower white).

These collections seemed to suit this species from the Solomon Islands. Later, in checking through the species of the genus, we were impressed by the likeness of the sketch of *Ophiorrhiza insularis* Val. Further checking with the description has led us to believe that the two are identical.

Argostemma Wallich

Argostemma perplexum sp. nov.

Planta 6–15 cm. alta, erecta, interdum ramosa; caule novello vel ramis pubescentibus, internodiis 3–9 mm. longis; foliis in paribus conformibus inaequalibus, majoribus 2.5–5 cm. longis, 0.5–1.7 cm. latis, minoribus 0.7–2.5 cm. longis, 1.5–9 mm. latis, lineari-lanceolatis vel lanceolatis, utrinque angustatis, apice acutis, basi cuneatis vel acutis, supra nigrescentibus, glabris vel consperse adpresse pilosulis, subtus pallidioribus, glabris vel costa pilosula, nervis lateralibus utrinsecus 5–7 supra inconspicuis, subtus manifestis; petiolis 5–15 mm. et 2–3 mm. longis; stipulis circiter 3 mm. longis, ovatis, apice plerumque bifidis, acutis vel breviter acuminatis, recurvis; pedunculo glabro, 5–7 mm. longo, bracteato; pedicello circiter 1 cm. longo, villoso; calyce rotato, cum ovario extus villoso, lobis glabratis, ovatis, acutis, 3 mm. longis, basi 2 mm. latis; corollae lobis ovatis, acuminatis, 1 cm. longis, 4 mm. latis, margine et apice sparsim pilosis; corolla circiter 20–23 mm. diametro; staminibus cohaerentibus; antheris dorso papillosis, thecis 4 mm. longis, appendiculis membranaceis 2 mm. longis, apice emarginatis.

NETHERLANDS NEW GUINEA: 4 km. southwest of Bernhard Camp, Idenburg River, *Brass 13422* (TYPE), March 1939, alt. 850 m., on shaded banks of a rain-forest stream (flowers white); 15 km. southwest of Bernhard Camp, Idenburg River, *Erass 12343,* Jan. 1939, alt. 1500 m., on mossy rocks in a rain-forest stream (flowers white).

It has been difficult to determine to which species this material might be

related. It is probably nearer *Argostemma griseum* Val. than to the others enumerated in Valeton's last work on the genus. In the type collection most of the plants are small, around 6 cm. tall, but one plant is 15 cm. high and branched; most of the inflorescences are single-flowered, but one plant in no. *12343* has a cyme with three flowers; sometimes the peduncle has two sets of bracts which would suggest that this inflorescence might represent a reduced cyme. Here the leaves do not seem to be at all ciliate as in *A. griseum* Val., and the stipules are definitely not rounded.

Argostemma callitrichum Valeton, Bot. Jahrb. 60: 42. 1925, Nova Guin. Bot. 14: 253. *t. 26, fig. D, 1–4.* 1925.

BRITISH NEW GUINEA: Mavi, Mount Tafa Range, *Brass 4987,* Sept. 1933, alt. 2225 m., on wet road-bank, common (fleshy small herb under cover of larger plants; leaves pale green; flowers white).

This collection agrees reasonably well with the description and plate cited above. Known from Northeast and Netherlands New Guinea.

Argostemma distichum Valeton, Nova Guin. Bot. 8: 447. 1911, ibid. 14: 251. 1925.

BRITISH NEW GUINEA: Palmer River, 2 miles below junction Black River, *Brass 7205,* July 1936, alt. 100 m., associated with mosses on decaying wood and on surface-roots exposed on floor of ridge forests (whole plant fleshy; flowers white).

A perfect match for the description of the plant from Netherlands New Guinea.

Airosperma Lauterbach & K. Schumann

Airosperma psychotrioides Lauterb. & K. Schum. in K. Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee 565. 1900; Val. Bot. Jahrb. 61: 32. 1927.

BRITISH NEW GUINEA: Dieni, Ononge Road, *Brass 3879,* April 1933, alt. 500 m., rain-forest, common (shrub 1.5–2 m. high; flowers greenish white; blue fleshy fruit ± 1 cm. long, 8–9 mm. diameter). Known from Northeast New Guinea.

Airosperma ramuense Lauterb. & K. Schum. in K. Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee 566. 1900; Val. Bot. Jahrb. 61: 32. 1927.

BRITISH NEW GUINEA: Dieni, Ononge Road, *Brass 3884,* April 1933, alt. 500 m., common in a rain-forest stream bed (large shrub with dark thin flat leaves pale underneath; inflorescence in leaf-axils, on branches, or low on the stem; corolla cream-colored, base of lobes purple). Described from specimens collected in the Bismarck Mountains; previously reported only from the type-locality.

Hydnophytum Jack

When we began the study of *Hydnophytum,* we found the genus already represented in Papuasia by more than 50 species; two keys are available, one by Beccari covering the species which he described, the other by Valeton including only the species of Northeast New Guinea. In a genus as large as this one, it would greatly facilitate determinative work to have a single key based on comparable and definite characters; however, we do not think it feasible to attempt this task without access to the already numerous types. The genus appears to offer good floral characters as well as those found in the fruits. The tuberous base also would sometimes seem to have definite characters, if we may judge by the material at hand. We have not found any species with pubescent leaves or branchlets. In only

one instance were the branchlets furfuraceous, while in another a tendency appeared in that direction, but only on the youngest tips.

Hydnophytum agatifolium Val. Nova Guin. Bot. 8: 774. 1912.

NETHERLANDS NEW GUINEA: Hollandia, *Brass 8805, 8903,* June 1938, alt. 20–100 m., plentiful on low trees of open fern slopes, also in rain-forest on banks of stream.

These two collections, from the type-locality of this species, agree reasonably well with the original description. The section from the tuberous base is more or less spiny, the spines being about 4 mm. long and at base about 2 mm. broad. In this character as well as in the flower and the pyrene, the species shows some resemblance to *Hydnophytum Forbesii* Hook. f.

Hydnophytum magnifolium sp. nov.

Tuber subleve, subglobosum, circiter 22 cm. diametro; ramis pluribus simplicibus usque 90 cm. longis, cylindricis vel versus apicem compressis, cinerascentibus vel brunnescentibus, internodiis superioribus 4.5–6 cm. longis; foliis magnis, 12–15.5 cm. longis, 5–8 cm. latis, ellipticis, utrinque angustatis, basi apiceque acutiusculis vel obtusiusculis, costa utrinque prominente, nervis lateralibus utrinsecus 9 vel 10 oblique adscendentibus, supra prominulis, subtus manifestis, venulis supra manifestis, subtus subobscuris; petiolo 1–2 cm. longo, supra plano; stipulis inconspicuis vel caducis; floribus in utraque parte folii insertionis conglomeratis, ima basi subimmersis; calyce libero, truncato, cum ovario 2.5 mm. longo; corolla 7 mm. longa, lobis obtuse ovatis, 2 mm. longis; flore longistylo: corollae tubo supra antheras dense piloso-barbato, infra staminum insertionem inconspicue annulato-barbato; antheris inclusis; flore brevistylo: fauce et parte superiore tubi dense pilosis; antheris exsertis, filamentis brevissimis, in fauce insertis; drupis 6 mm. longis; pyrenis 2 oblongis, 5 mm. longis, 2 mm. latis, basi acutiusculis, apice bilobis, inter lobos rostratis, dorso bisulcatis.

NETHERLANDS NEW GUINEA: Bernhard Camp, Idenburg River, *Brass 13768, 14130* (TYPE), April 1939, alt. 50 m., high and large epiphyte in rain-forest (tuberous base subglobose, 22 cm. diameter; several stout simple branches to 90 cm. long; flowers pale green [in the first collection cited] or white [in the second]).

This species is very close to *Hydnophytum macrophyllum* Warb. in having several stems, leaves about the same size, and flowers glomerulate. It differs in having about twice as many lateral nerves, and these are distinctly visible to the naked eye. Warburg does not say whether the flower is only in bud or near anthesis, except to note that at flowering time the calyx is longer than the disk. If his flowers were near anthesis, then his species is marked by very small flowers. In both the collections cited the flowers are more than twice as large as in Warburg's collection. The pyrene in our species is most like that of *H. Forbesii* Hook. f., the lobes being 0.5 mm. long and somewhat pointed, as well as the beak in the middle, this being 1 mm. long.

Hydnophytum heterophyllum sp. nov.

Tuber parvum consperse spinosum, spinis gracilibus, ± 1 cm. longis; caule solitario, pendulo, ± 1 m. longo, versus apicem ramoso, cylindrico; ramulis brunnescentibus leviter compressis, internodiis 1–4 cm. longis; foliis ovatis, apice obtusiusculis vel acutiusculis, basi leviter cordatis, costa

utrinque manifesta, versus basim crassiuscula, nervis lateralibus utrinsecus 5 vel 6, supra inconspicuis, subtus obscuris; foliis ramulorum ultimorum ellipticis, parvis, 2.5–3 cm. longis, 1.3–1.9 cm. latis, basi et apice acutiusculis vel obtusiusculis, costa tantum manifesta; petiolo (5–)7–10 mm. longo; floribus in axillis foliorum basi bracteis minutis praeditis; alabastro tantum viso; calyce membranaceo, truncato, disco longiore; fauce corollae tubi et basi loborum pilis rectis exsertis dense obsitis; antheris linearibus, exsertis; drupis 6 mm. longis, lageniformibus; pyrenis 4 mm. longis, basi rotundatis, apice apiculato, apiculo 0.5 mm. longo, parte superiore dorsi leviter bisulcata.

NETHERLANDS NEW GUINEA: 6 km. southwest of Bernhard Camp, Idenburg River, *Brass 12857* (TYPE), Feb. 1939, alt. 1200 m., high epiphyte in rain-forest (stock small with one pendent stem ± 1 cm. long; flowers unopened; fruits orange-colored).

It has been difficult to determine the alliance of this species; the apiculum of the pyrene, the hairiness of the inside of the corolla, and the ovate leaves suggest *Hydnophytum Moseleyanum* var. *Teysmannii* Becc., but the latter has obovate pyrenes, and in the specimen cited they are elliptic or slightly ovate in outline; the larger leaves here show a definite venation although they are not at all prominent. There is also a possibility that the species may be allied to *H. macrophyllum* Warb., but in the latter the leaves are described as slightly obovate to elliptic. Here the difference between the outline (elliptic and ovate) and size (2.5 — 3 × 1.3 — 1.9 cm. in contrast with 6.5 — 12 × 3.5 — 7 cm.) of the leaves on the younger and older parts of the specimen is particularly striking, more so than in any of the other material of this genus which we have at hand.

Hydnophytum nigrescens sp. nov.

Tuber globosum; caule ramoso; ramulis nigrescentibus longitudinaliter rugulosis circiter 3 mm. diametro, internodiis 1.5–2.5 cm. longis; foliis ellipticis, 3.5–8.5 cm. longis, 2–4.5 cm. latis, saepissime 4.5–5 × 2–2.5 cm., apice abrupte acutis, basi cuneatis, costa utrinque prominula, nervis lateralibus utrinsecus 8 vel 9 utrinque subobscuris; petiolo 4–7 mm. longo; floribus in nodis valde tumidis, bracteatis, bracteis longe pilosis, in alveolis inclusis; calyce glabro, margine leviter lobato vel undulato, (incl. ovario) 2 mm. longo; corollae tubo 5 mm. longo, infra antheras inconspicue barbato, ostio dense barbato, pilis 1 mm. exsertis, lobis 2 mm. longis, ovatis, sub apice uncinulatis; antheris inclusis, in fauce insertis; stylo 6 mm. longo; stigmate bilobo, lobis exsertis; drupis non visis.

BRITISH NEW GUINEA: Palmer River, 2 miles below junction Black River, *Brass 7171* (TYPE), July 1936, alt. 100 m., common canopy epiphyte of ridge forests (a large plant with well developed tuberous stock, galleried, but containing no ants; branches black).

Among the New Guinean species, this one seems to approach *Hydnophytum Ledermannii* Val., but the branchlets are not furfuraceous, the nerves of the leaves are obliquely spreading, and the corolla is only very sparsely hairy at the base of the anthers and between them; however, the mouth of the corolla is filled with flat hairs.

Hydnophytum Archboldianum sp. nov.

Tuber magnum subleve; ramulis angulatis, novellis compressis, subfurfuraceis (cortice rimoso), interdum longitudinaliter rugulosis, atrofuscis,

internodiis 1.5–3 cm. longis; foliis late ellipticis, 3–5 cm. longis, 1.5–3.3 cm. latis, apice obtusis vel rotundatis, basi rotundatis, margine in sicco revolutis, atro-rufescentibus, costa utrinque prominente, versus basim crassiuscula, nervis lateralibus subpatentibus, utrinsecus 4–6 supra prominulis, subtus manifestis, vel utrinque subobscuris; petiolo circiter 2 mm. longo, crassiusculo; floribus in nodis tumidis, in alabastro bracteis intus longe pilosis inclusis; floribus sub anthesin partim exsertis; calyce cupulari, truncato, interdum minute denticulato, glabro; corolla infundibulari, corollae tubo 9–10 mm. longo, fauce minute papilloso-pubescente, lobis oblongis, 3–3.5 mm. longis; antheris partim exsertis, 2.5 mm. longis, linearibus, basi sagittatis, medio dorso affixis; stylo 12 mm. longo; stigmate bilobato, lobis linearibus; drupis obovatis, 8 mm. longis; pyrenis 2 vel 3, obovoideis, 3 mm. longis, apice rotundatis, basi anguste obtusis.

NETHERLANDS NEW GUINEA: Lake Habbema, *Brass 9506* (TYPE), Aug. 1938, alt. 3225 m., epiphytic in forests of moist hollows, common (shrub with large tuberous stock and long straggling branches; stock purple inside; leaf-nerves slightly impressed below, prominent above; flowers purple-red, solitary in axils); same locality, *Brass 9240, 9492,* August 1938, alt. 3225 m., occasional in edge of forest and in forest undergrowth (erect somewhat fleshy shrub ± 1 m. high; flowers pale purple and purple-red; fruit red, fleshy).

Hydnophytum Archboldianum is perhaps most nearly related to *H. Ledermannii* Val. It may readily be distinguished from the latter species by its different leaves and flowers. Superficially it seems to be easily recognized by its dark reddish practically sessile elliptic leaves which appear to have buds in their axils. On closer examination, one finds that these are really bracts (5–7 mm. long) protruding from shallow alveoli, which cover the flower buds. Only a very few species of *Hydnophytum* have bracts as large as these. At anthesis the corolla projects above the bract about half its length; usually there is only one flower to a bud, but occasionally there are more. The fruit of the type is immature, the description being taken from a ripe drupe of no. *9492*. In both the type and in no. *9240* we have found three locules. Whether this indicates a four-seeded fruit with one aborted or whether the normal number of locules in the fruit is two, we are not prepared to say. It should be noted that the type is described as having a tuberous stock, whereas the other two collections cited are described as shrubs. These in Mr. Brass' opinion were mature shrubs, not young plants in which the tuber might not yet have developed. In a discussion of *H. radicans* Becc., Valeton points out that the tuberous base is sometimes lacking in that species, and of course *H. normale* Becc. has no tuberous base, but is epiphytic.

Hydnophytum contortum sp. nov.

Tuber rotundatum, subleve, irregulare, ± 28 cm. diametro; caulibus pluribus brevibus (in specimine typico ± 30 cm. longis), ramosis, cinerascentibus; ramis argute tetragonis, in parte superiore compressis, atro-fuscis vel brunnescentibus, cortice longitudinaliter ruguloso, internodiis 1–4 cm. longis; foliis ellipticis vel leviter obovatis, 3–6 cm. longis, 1.5–3.8 cm. latis, apice rotundatis, basi rotundatis vel obtusis vel cuneatis, coriaceis, costa supra impressa, subtus prominula, nervis lateralibus utrinsecus 4 vel 5 utrinque inconspicuis vel subobscuris; petiolo plerumque 2–4 mm. longo;

floribus in nodis valde tumidis, bracteis dense rufo-pilosis praeditis; calyce margine ciliato, ciliis 1 mm. longis, dense confertis; corollae tubo 5 mm. longo, fauce annulato-barbato, lobis ovatis sub apice uncinulatis; staminibus in ostio tubi insertis, filamentis 0.5 mm. longis, antheris 1 mm. longis, oblongis, exsertis; drupis lageniformibus, 5 mm. longis; pyrenis 2 obovatis, 4 mm. longis, apice rotundatis, basi acutis.

BRITISH NEW GUINEA: Wuroi, Oriomo River, *Brass 5849* (TYPE), common on savanna trees (several short contorted stems produced from a large rounded tuberous stock; a typical tuberous base measured 28 cm. in diameter with surface smooth, brown, and very irregular; leaves shining, thick, fleshy; flowers white; fruit soft, reddish orange).

Possibly this species should have been placed in *Hydnophytum tortuosum* Becc., with which it agrees in foliar and stem characters; in Beccari's species the calyx is described as being densely pilose-paleaceous with a short truncate or very obscurely denticulate limb. In *H. contortum,* the limb of the calyx is very short, being about even with the margin of the disk, and the margin of the calyx is clothed with a very dense row of brown cilia about 1 mm. long. The flowers on the plant were scarce, but this character persists in fruit. The only other place we find mention of a comparable character is in the description of *H. Kochii* Val. Here Valeton says the berry is crowned by the disk surrounded by a ring of castaneous hairs. Apart from the ciliate margin, in our species the calyx and ovary are glabrous. This is just another instance where it is necessary to re-examine a type in order to be sure of the characters of a species.

Hydnophytum longistylum Becc. Malesia 2: 152. *t. 38, figs. 1–10.* 1885; Guppy, The Solomon Islands and their Natives, 297. 1887; Valeton, Bot. Jahrb. 61: 136. 1927.

SOLOMON ISLANDS: San Cristoval: Waimamura, *Brass 2855,* September 1932, epiphytic on beach trees, common (stems numerous on a large tuberous base, irregular in form and varying greatly in size, with an uneven muricate surface pierced by numerous entrance-holes of the small brown ants which inhabit it; stems 1 m. or more long, often galled, the nodes swollen; leaves very thick and fleshy, the veins obscure [visible when dry]; flowers white; fruit yellow, about 9 mm. long, 4 mm. diameter, with two large white seeds enclosed in mucilaginous pulp).

From Guadalcanal Island, there are two collections which in all details agree with *Hydnophytum Stewartii* Fosberg, Lloydia 3: 123. *fig. 5.* 1940. These are *Brass 2548* and *Kajewski 2389,* one collected at Berande, the other on the Berande River; the field notes indicate a plant with branches pendulous from a tumid stock inhabited by great numbers of small brown ants; the branches are more than a meter long. Kajewski describes the fruit as cream-colored, thickest at the base, tapering to a blunt point, 8 mm. long, 3 mm. in diameter. Unfortunately our specimen does not have ripe fruit. In every other respect, as far as we can see, except in the size of the flowers, these collections agree with the collection from San Cristoval, the latter having flowers with the dimensions given for *H. longistylum* Becc. Beccari and Valeton both indicate glomerulate flowers without a tubercle; this is true of the upper nodes, but on the lower nodes of our specimen the inflorescence consists of flowers and fruit at the end of a tubercle about 4 mm. long, just as in *H. Stewartii* Fosb. Owing to the differ-

ence in the size of the flowers and the lack of sufficient material to estimate the range of variation, we are keeping both species in the *status quo* for the present. Beccari had only very fragmentary material on which to describe his species, and it seems very possible that he had one of the upper nodes at hand when he says that neither tubercle nor peduncle was present.

Hydnophytum ellipticum sp. nov.

Tuber parvum, ± 10 cm. diametro; ramulis cinerascentibus vel brunnescentibus, longitudinaliter rugulosis, cylindricis, novellis compressis, internodiis 1.5–3 cm. longis; foliis ellipticis, 4–8 cm. longis, 2–4.3 cm. latis, utrinque angustatis, basi et apice acutiusculis vel obtusiusculis, costa utrinque prominente, nervis lateralibus utrinsecus circiter 4, supra inconspicuis, subtus subobscuris; petiolo 3–8 mm. longo, crassiusculo; floribus in alveolis, axillaribus, bracteis suffultis; calyce parte superiore libero, glabro, (incl. ovario) 2 mm. longo, margine truncato; corollae tubo 4 mm. longo, fauce et lobis basi dense barbato, pilis in fauce patentibus, in lobis erectis, lobis 2 mm. longis, oblongis; filamentis brevibus, in fauce insertis, antheris 1.5 mm. longis, linearibus, parte superiore exsertis; stylo 5 mm. longo; drupis 4 mm. longis; pyrenis 3 mm. longis, obovatis, apice rotundatis, basi acutiusculis, dorso convexis.

NETHERLANDS NEW GUINEA: 15 km. southwest of Bernhard Camp, Idenburg River, *Brass 12111* (TYPE), Jan. 1939, alt. 1800 m., frequent epiphyte in mossy forest (tuberous base small, about 10 cm. diameter; flowers white).

This species is possibly related to *Hydnophytum nigrescens,* but it is readily distinguished by the light-colored branches and the more shallow alveoli; in addition, the throat of the corolla is densely hairy, and the bracts in the alveoli are not so conspicuously hairy as in the species from the Palmer River.

Hydnophytum myrtifolium sp. nov.

Tuber irregulare; caulibus ramosis; ramis compressis vel leviter angulatis, brunnescentibus vel cinerascentibus, gracilibus; ramulis ultimis circiter 2 mm. diametro, internodiis 1–4 cm. longis; foliis ellipticis vel ovato-ellipticis, 1.5–4 cm. longis, 0.5–2.2 cm. latis, apice acutiusculis vel obtusis, basi obtusis vel cuneatis, in sicco margine recurvis, supra rugulosis, subtus plerumque planis, costa utrinque distincta, nervis lateralibus utrinque obscuris; petiolo 2–5 mm. longo; floribus in axillis foliorum confertis; bracteis minutis; calyce (incl. ovario) 2 mm. longo, glabro, truncato, membranaceo; corollae tubo 6 mm. longo, ostio barbato, lobis 2 mm. longis, ovatis; antheris in apice tubi sessilibus, medio dorso affixis, linearibus vix 2 mm. longis; stylo 7 mm. longo; pyrenis 2 ellipsoideis, 3 mm. longis, apice et basi rotundatis, dorso convexis.

BRITISH NEW GUINEA: East Mount Tafa, *Brass 4093* (TYPE), May 1933, alt. 2100–2300 m., common epiphyte in both mossy and foothill forests (closely attached by several roots or pendent on a single tough flexible root up to 1 m. long; the swollen irregularly shaped stock of a typical plant measured 20 cm. diameter, and was hollowed in wide galleries containing a quantity of water but no ants; some plants were found to contain a species of small red tree frogs; no ants were found in any of the specimens examined; leaves fleshy and shining, darker above; flowers white; fruit fleshy, red, ± 3 mm. diameter); Murray Pass, Wharton Range, *Brass 4589,* July 1933, alt. 2840 m., epiphytic on trunks of forest trees, not plentiful (branches produced from a rounded

tuberous base 20 cm. or more in diameter; branches ridged and finely rugose; leaves dark; corolla white, the tube ± 1 cm. long; fruit bright red, soft, 6–7 mm. diameter).

In leaf-size this species probably falls somewhere near *Hydnophytum cordifolium* Val. and *H. parvifolium* Val. Both the latter species have flowers on very short tubercles. However, having observed the variation in tubercles and lack of them, it seems best to note that other species have been observed where the flowers are sometimes apparently sessile in upper axils, while those flowers farther down may be at the tip of a short tubercle in the axil. Neverthless, there are distinct and definite floral characters which set this species apart from the other small-leaved species. The corolla is rather large, with a long tube barbate at the mouth only. In most species with the mouth of the tube barbate, the throat or the space immediately below the anthers is also hairy. The anthers are sessile and attached by the middle of the back, being only half exserted from the mouth of the flower; the pyrenes too seem to be reasonably distinctive in the rounded base.

Hydnophytum confertifolium sp. nov.

Tuber parvum spinis conspersis praeditum; spinis ± 1 cm. longis interdum ramosis; caulibus pluribus ramosis; ramis angulatis; internodiis ultimi ramuli ± 1.5 mm. longis; foliis glabris subrotundatis, circiter 5 mm. longis et 4 mm. latis, in sicco rugulosis, margine recurvis, costa tantum basi manifesta; petiolo 1–2 mm. longo; stipulis parvis, late triangularibus, caducis; floribus in axillis foliorum insertis, ima basi immersis; calyce libero, glabro, margine undulato vel leviter lobato, cum ovario 2 mm. longo; corolla in alabastro clavata, apice 4-angulata, acutiuscula; corollae tubo 7–8 mm. longo, fauce parce piloso, lobis circiter 3 mm. longis, sub apice uncinulatis; antheris lineari-oblongis in fauce insertis, fere sessilibus; stylo longo, stigmate exserto; drupis maturis cum calyce 6 mm. longis; pyrenis 3 mm. longis, 2 mm. latis, obovatis, apice rotundatis, basi acutiusculis.

NETHERLANDS NEW GUINEA: 18 km. southwest of Bernhard Camp, Idenburg River, *Brass 12680* (TYPE), Feb. 1939, alt. 2150 m., mossy forest (high epiphyte; tuberous base small and bearing branched thorns; leaves concave; flowers greenish white with green apex; fruit red).

Although the corolla in bud strongly suggests that of *Hydnophytum alboviride,* the species is probably closer to *H. Vitis-Idaea.* Both species have flowers few in number (i. e. in an inflorescence), the base immersed in a small alveolus, the calyx free and either shallowly lobed or minutely denticulate, and small leaves. They are readily distinguishable by various characters: in *H. confertifolium* the tuberous base is thorny with scattered spines, and the flower-bud is clavate, tapering at the apex; in *H. Vitis-Idaea* the corolla-tube is slender and the lobes form an elliptic outline at the end, as if the flower might be hypocrateriform when open; the pyrenes are different in outline, the one being oblong, the other obovate, although they belong to the same general type.

Hydnophytum decipiens sp. nov.

Tuber subleve; caule versus basim circiter 5 mm. diametro, ramoso; ramis acute tetragonis, cinereis; internodiis 1–3.5 cm. longis; foliis ovatis vel rotundato-ovatis vel ellipticis, (1.1–)1.5–2 cm. longis, 0.7–1 cm. latis,

apice acutiusculis vel obtusis, basi rotundatis interdum cuneatis, in sicco supra minute rugosis, subtus planis, glabris, costa utrinque manifesta, nervis lateralibus obscuris; petiolo 1–2 mm. longo; stipulis non visis; floribus in axillis foliorum insertis, ima basi immersis; calyce in parte superiore libero, truncato, corollae tubo 4 mm. longo, intus glabro, fauce glabro, lobis 2 mm. longis, obtusiusculis sub apice uncinulatis; antheris 1.5 mm. longis, linearibus, in fauce insertis; stylo 5.5 mm. longo; stigmate exserto; drupis 4 mm. longis, pyrenis 2.5 mm. longis, 2 mm. latis, apice rotundatis, basi acutiusculis.

NETHERLANDS NEW GUINEA: 18 km. southwest of Bernhard Camp, Idenburg River, *Brass 12684* (TYPE), Feb. 1939, alt. 2150 m., mossy forest, on branches of large trees (branches weak, ± 60 cm. long; flowers white).

This species seems to be closest to *Hydnophytum parvifolium* Val., at least as regards leaf-variation. It has been a little difficult to be sure where the line of distinction lies between an incipient tubercle and a shallow alveolus, both of which sometimes have bracts. Here the basal part of the flower appears to be covered by small bracts, but there is no elongation of the process indicating a tubercle, nor is there any great enlargement of the node indicating a deep alveolus.

The species is very close to our *Hydnophytum Vitis-Idaea*, but in the latter the throat has an erect pilosity which is lacking here.

Hydnophytum Vitis-Idaea sp. nov.

Tuber usque 15 cm. diametro, subleve; ramis ± 45 cm. longis, ramosis, basi 4 mm. diametro, glabris; ramulis angulatis vel novellis compressis, cortice apice transverse rimoso; internodiis ultimi ramuli 3–8 mm. longis; foliis glabris, subcoriaceis, late ellipticis interdum obovatis, minoribus fere rotundatis, 0.3–1 cm. longis, 0.2–0.5 cm. latis, apice rotundatis, basi cuneatis vel obtusis, in sicco supra rugosis, subtus levibus, costa utrinque leviter manifesta, nervis lateralibus obscuris; petiolo 0.5–1.5 mm. longo; stipulis inconspicuis vel mancis; floribus in utraque parte folii insertionis 1 vel 2 confertis, ima basi immersis; calyce libero glabro, minute denticulato, cum ovario 2 mm. longo; corollae tubo circiter 6 mm. longo, fauce erecto-piloso, pilis apice exsertis, lobis 5 mm. longis, oblongis, uncinulatis, intus minute puberulis; antheris linearibus in fauce insertis; stylo 9 mm. longo; stigmaticis lobis 1 mm. longis; drupis oblongis, cum calyce 4 mm. longis, 2 mm. latis; pyrenis oblongis, 3 mm. longis, apice rotundatis, vix 1.5 mm. latis, basi leviter angustatis.

NETHERLANDS NEW GUINEA: 15 km. southwest of Bernhard Camp, Idenburg River, *Brass 12046* (TYPE), Jan. 1939, alt. 1800 m., mossy forest (a common epiphyte on the branches of tall trees; tuberous base up to ± 15 cm. diameter; flowers white; fruit red).

The species is perhaps related to *Hydnophytum parvifolium* Val., but the leaves are smaller and of different outline, and the flower is much larger. Without the tuber, the plant suggests a loose form of *Vaccinium Vitis-Idaea* var. *minus* Lodd., although the leaves are smaller than in that plant.

Hydnophytum alboviride sp. nov.

Tuber subleve cinereum; ramis usque 1 m. longis, ramosis, obtuse angulatis, fusco-cinereis; ramulis compressis, sulcatis, atrofuscis; internodiis ultimi ramuli 0.5–1 cm. longis; foliis 0.9–1.5 cm. longis, 0.7–1.3 cm. latis,

late ovatis vel subrotundatis, apice acutiusculis vel rotundatis, basi rotundatis, in sicco subcoriaceis, brunneis, utrinque minute rugosis, costa tantum versus basim manifesta, nervis lateralibus obscuris; petiolo 1.5–2 mm. longo, crassiusculo; stipulis truncatis; floribus sessilibus in alveolis ad articulationes nidulantibus paucis (1 vel 2), basi in bracteis pilosis involutis, in alabastro clavatis; calyce truncato glabro, margine ciliato, pilis 0.5 mm. longis, calyce cum ovario 2 mm. longo; corolla infundibulari, tubo 7 mm. longo intus glabro, lobis 2 mm. longis, obtuse triangularibus, sub apice uncinulatis; antheris 1.5 mm. longis, medio dorso in fauce tubi affixis, apice tantum exsertis; stylo 1 cm. longo; stigmate exserto; drupis non visis.

NETHERLANDS NEW GUINEA: 18 km. southwest of Bernhard Camp, Idenburg River, *Brass 12682, 12683* (TYPE), Feb. 1939, alt. 2150 m., mossy forest, epiphytic on branches of large trees (a large plant with branches up to 1 m. long, erect; leaves flat; flowers greenish white).

Of the species of *Hydnophytum* already described from New Guinea, this one superficially suggests *H. Hellwigii* Warb., but it differs considerably in specific details. Apart from the small leaves, the summary of the distinctive characters of this species might be indicated as: flowers in alveoli surrounded by bracts and long brown hairs; calyx with cilia 0.5 mm. long, also brown; corolla glabrous within; anthers closely affixed by the middle of the back, only the apices exserted. On the long leafless branches (the leaves often being only toward the tip), flowers or buds with the corolla half protruding may be observed at the nodes.

Hydnophytum buxifolium sp. nov.

Tuber subleve; ramis tetragonis, cinerascentibus; ramulis ultimis anguste alatis; internodiis 5–10 mm. longis; foliis lanceolatis, utrinque aequaliter angustatis, basi et apice anguste obtusis, utrinque minute rugulosis, 0.7–1.3 cm. longis, 0.3–0.6 cm. latis, costa tantum manifesta; petiolo circiter 1 mm. longo, crassiusculo; stipulis caducis; floribus in axillis foliorum bracteis suffultis; bracteis minutis; calyce (incl. ovario) 1.5 mm. longo, margine leviter lobato, glabro; corollae tubo 3 mm. longo, fauce dense barbato, pilis subexsertis, lobis oblongis obtusiusculis, sub apice uncinulatis, 2 mm. longis; antheris exsertis, oblongis, 1 mm. longis, filamentis 0.5 mm. in fauce insertis; stylo brevi, vix 3 mm. longo; drupa immatura, 2.5 mm. longa.

NETHERLANDS NEW GUINEA: 18 km. southwest of Bernhard Camp, Idenburg River, *Brass 12681* (TYPE), Feb. 1939, alt. 2150 m., high epiphyte in mossy forest (flowers white).

Hydnophytum buxifolium most closely approaches *H. punamense* Lauterb., from the Bismarck Archipelago; however, in the New Guinean material the leaves are about twice as broad in proportion to their length, and the flowers are very much larger. Valeton has reported Lauterbach's species from southwestern Netherlands New Guinea, but he has added nothing to the original description except that, in his key to species of Northeast New Guinea, he gives larger dimensions for the leaves than those given in the original description.

Hydnophytum ramispinum sp. nov.

Tuber parvum ovoideum spinis praeditum; spinis 1.5–2 cm. longis, ramosis, interdum ramis ramosis, gracilibus; caulibus pluribus, 70–80 cm. longis,

ramosis; ramulis ultimis compressis, angulatis, cortice furfuraceis; internodiis 1.5–4 cm. longis; foliis glabris subcoriaceis, lineari-oblongis, 3–6 cm. longis, 0.6–0.9 cm. latis, apice obtusis, basi rotundatis vel obtusis, in sicco leviter rugulosis, costa supra impressa, subtus prominula, nervis lateralibus obscuris; petiolo circiter 1 mm. longo; stipulis caducis; floribus 3–5 in axillis foliorum confertis, ima basi immersis; alabastro 2.5 mm. longo; calyce membranaceo truncato (incl. ovario) 1 mm. longo; corollae tubo 1 mm. longo, fauce sparsim pilosulo, lobis obtusis, 1 mm. longis; antheris in fauce insertis, 1 mm. longis; stylo brevi; drupis non visis.

NETHERLANDS NEW GUINEA: 6 km. southwest of Bernhard Camp, Idenburg River, *Brass 12858* (TYPE), Feb. 1939, alt. 1200 m., rain-forest; common epiphyte of middle spaces (stock small, ovoid; stems several, pendent, 70–80 cm. long; flowers yellow).

In leaf-size and flower, this species is near *Hydnophytum stenophyllum* Val. and *H. punamense* Lauterb. In both the latter species the leaves are either attenuate-acute or acute, and in neither is there any mention of the furfuraceous character of the young bark. Unfortunately many of the species have no indication of the characters of the tuberous base. In this the slender branching spines are most distinctive.

Hydnophytum punamense Lauterb. Fl. Deutsch. Schutzgeb. Südsee, Nachtr. 401. 1905; Valeton, Nova Guin. Bot. 8: 508. 1911, Bot. Jahrb. 61: 140. 1927.

NETHERLANDS NEW GUINEA: 6 km. southwest of Bernhard Camp, Idenburg River, *Brass 13008,* Feb. 1939, alt. 1450 m., epiphytic on tall rain-forest tree (tuberous base small, ovoid, 14 × 10 cm.; branches ± 50 cm. long; flowers white; fruit yellow); 4 km. southwest of Bernhard Camp, Idenburg River, *Brass 13403, 13413,* March 1939, alt. 850 m., common high epiphyte in rain-forest (branches upright; flowers white, very small; fruit orange-colored).

Valeton reported this species from southwestern Netherlands New Guinea, but we have thought it worth while to record it here and to call attention to the variation in the size and the form of the leaves. In the original they are described as lanceolate or sublinear, acute, the base subrounded or acute. Some of the smaller might be considered as linear-oblong, obtuse, with cuneate base, and in most of them, although the apex is narrow, it is not sharply pointed; the leaves vary in size from 2 to 5 cm. in length and from 0.5 to 1.3 cm. in breadth. We note this particularly, as Valeton, in his key to the species of Northeast New Guinea, says that the leaves are at most 35 × 7–8 mm. We have been unable to find any differences in the flowers and fruits of the collections at hand, although the flowers are 2 mm. long rather than 1 mm., as stated in the original description.

Hydnophytum longipes sp. nov.

Tuber? . . .; ramulis subangulatis vel novellis tetragonis, atrofuscis vel brunnescentibus, internodiis 1.5–9 cm. longis, foliis in sicco membranaceis, lanceolato-ellipticis, 5–15 cm. longis, 2.5–5.5 cm. latis, basi et apice aequaliter angustatis, apice acutis, basi cuneatis vel acutis, costa utrinque prominula, nervis lateralibus utrinsecus 8–10 utrinque distinctis, non prominulis, oblique adscendentibus deinde arcuatis; petiolo 3–7 mm. longo; stipulis 2 mm. longis, acutiusculis interdum apice breviter acuminatis, caducis; inflorescentiis pedunculatis, bifurcatis, pedunculo 3–5 cm. longo,

ramis 1–1.5 cm. longis, ramulis ultimis 1–2.5 cm. longis, cicatricosis, floribus et fructibus apice et versus apicem ramulorum ultimorum sessilibus; calyce ima basi immerso (incl. ovario) 1 mm. longo, truncato, disco breviore; corolla in alabastro tantum visa, fauce annulato-barbato, lobis 2 mm. longis, basi pilis erectis praeditis, oblongis; staminibus in fauce tubi insertis, filamentis brevibus, antheris 1 mm. longis, lineari-oblongis, sub anthesin exsertis; stylo longo, stigmate probabiliter exserto, bilobato; drupis 5 mm. longis, ovoideis; pyrenis ellipsoideis, 4 mm. longis, basi et apice subrotundatis, dorso convexis.

SOLOMON ISLANDS: Bougainville: Kieta, *Kajewski 1571* (TYPE), March 1930, at sea-level, rain-forest (plant found growing on large tree, up to 1 m. long; flowers minute, green, with a prominent style; fruit yellow, semi-transparent, 7 mm. long, 4 mm. in diameter, oval-shaped).

Hydnophytum longipes belongs in the same group with *H. normale* Becc. and *H. radicans* Becc. It has, however, lanceolate-elliptic leaves with short petioles, narrower anthers, and the pyrenes are rounded at the apex, not at all emarginate as in the latter species.

Hydnophytum radicans Becc. Malesia 2: 132. *t. 30.* 1885; Valeton, Nova Guin. Bot. 8: 503. 1911, op. cit. 771. 1912; Lam, Nat. Tijds. Nederl.-Ind. 88: 204. 1928.

BRITISH NEW GUINEA: Palmer River, 2 miles below junction Black River, *Brass 7172,* July 1936, alt. 100 m., common ridge-forest canopy epiphyte (tuberous stock small; branches long, weak and semi-herbaceous; leaves fleshy; flowers green; fruit soft, red, ± 5 mm. long, 3 mm. diameter).

This collection agrees with Valeton's description which he has given for material placed in this species with a query, but it also agrees fairly well with the original. The inflorescence shows great variation in size, the peduncle being from 2.5 to 6 cm. long, and the rest of the inflorescence 2–8 cm. long and 4–14 cm. broad.

Hydnophytum albense Valeton, Bot. Jahrb. 61: 128. 1927.

NETHERLANDS NEW GUINEA: Bernhard Camp, Idenburg River, *Brass 13980,* April 1939, alt. 50 m., flood-plain rain-forest (low epiphyte; flowers white).

The petioles are only about two-thirds as long as those described in the original; the differences between this species and *Hydnophytum subnormale* K. Schum. are not quite clear to us from Valeton's key, and the types would appear from the descriptions to be more or less fragmentary.

Hydnophytum Albertisii Becc. Malesia 2: 136. *t. 45, figs. 8–14.* 1885; Val. Nova Guin. Bot. 8: 772. 1912.

BRITISH NEW GUINEA: Fly River, 528 mile Camp, *Brass 6599, 7011,* May 1936, alt. 80 m., commonly associated with ferns, mosses, and orchids on branches of canopy trees (tuberous base often reduced to a series of small swellings on stem, or entirely absent in young plants already flowering; stems quadrangular; leaves bluish green).

There can scarcely be any doubt that these two collections belong to Beccari's species. Some of the leaves are even more sharply acuminate than that in Beccari's plate. The plants have flowers with both long and shorter styles. Those with the long style correspond to Beccari's figures. In the other the stamens, instead of being inserted in the tube and included, are inserted in the mouth of the corolla-tube, and thus are exserted with the very thick tuft of hairs which protrudes from the mouth of the corolla;

below the stamens the tube is densely hairy in the upper half or nearly two thirds; the style reaches only to the base of the anthers; the stigma is not distinctly lobed in the buds examined; the fruit is 4 mm. long, and one contained 4 pyrenes, another contained 3, while the other probably did not develop; the pyrenes are 3.5 mm. long, linear-oblong in outline or slightly wider at base (1 mm.), obtuse at the apex and base. Both plants appear to be developing fruits.

Hydnophytum Hahlii Rechinger, Rep. Spec. Nov. 9: 186. 1912, Denkschr. Math.-Nat. Kl. Akad. Wiss. Wien 89: 612. *t. 2, fig. 3a.* 1913?

SOLOMON ISLANDS: San Cristoval: Hinuahaoro, *Erass 2912,* Sept. 1932, alt. 900 m., mountain forests (small trees; branches swollen at the nodes; leaves pale, flat, fleshy, the nerves more prominent above; flower white; fruit smooth, 6 × 4 mm., marked longitudinally with white lines).

We have placed this specimen here with some hesitation. Rechinger's species grew on the branches of strand trees. However, the flowers on the specimen at hand are only in young bud, and when mature the stamens would be exserted, and for this reason the hairiness within the corolla is correspondingly different. The buds indicate a very dense growth of hairs protruding from the mouth of the corolla. The pyrene is more rounded than attenuate at the base. Nevertheless the plate of Rechinger's species is so much like the plant at hand that we hesitate to place it elsewhere without further material for comparison.

Hydnophytum Guppyanum Becc. Malesia, 2: 133. *t. 40.* 1885; Guppy, The Solomon Islands and their Natives, 297. 1887; Rechinger, Denkschr. Math.-Nat. Kl. Akad. Wiss. Wien 89: 612. 1913.

SOLOMON ISLANDS: Ysabel: Tataba, *Erass 3421,* Jan. 1933, alt. 50 m., epiphytic on rain-forest trees, plentiful (stems under 1 m. long, ascending or pendent from a large swollen base much tunnelled by small brown ants; leaves fleshy, the upper side dull, the lower paler and shining; fruit reddish).

Rechinger was not sure of the determination of his specimen, but there can be no doubt that this is the same species as was described from the Shortland Islands.

Hydnophytum Kajewskii sp. nov.

Tuber? . . .; caulibus ramosis; ramis acute tetragonis, internodiis 1.5–2 cm. longis; foliis subrotundis, 1–2.7 cm. longis, 0.9–2.4 cm. latis, apice rotundatis vel obtusis, basi cordatis, sessilibus, in sicco margine leviter recurvis, costa utrinque manifesta versus basim leviter incrassata, nervis lateralibus utrinsecus 4–6 supra prominulis, subtus manifestis vel inconspicuis, oblique patentibus; inflorescentiis in axillis graciliter pedunculatis, furcatis; pedunculo 1–1.5 cm. longo tetragono vel compresso; ramis plerumque 1 cm. longis dense cicatricosis; floribus paucis apice rami insertis, alabastris tantum visis; calyce truncato glabro, cum ovario 2 mm. longo; corollae tubo 3 mm. longo, fauce annulato-barbato, lobis 2 mm. longis, oblongis, glabris; filamentis in fauce tubi insertis, antheris 1.5 mm. longis, oblongis; stylo fere 4 mm. longo; drupis non visis.

SOLOMON ISLANDS: Bougainville: Kupei Gold Field, *Kajewski 1716* (TYPE), April 1939, alt. 1000 m., growing from a huge bulb on rain-forest trees (flowers white; fruit 6 mm. long, 4 mm. diameter, irregularly ovoid, green when ripe, with white longitudinal lines).

The leaves of this species at once call to mind the plate of *Hydnophytum ovatum* Becc. But in the latter species the flowers are inclosed in alveoli. As far as we know, this is the only species with small rounded leaves and pedunculate inflorescences.

Myrmecodia Jack

With so little material available for examination, it has not been easy to estimate the variability of specific characters in *Myrmecodia*. In the work here presented, we have relied chiefly on floral characters, those of the alveoli, and of the spines of the stem and tuberous base. The fruits do not have as distinctive features as those of *Hydnophytum* Jack. Occasionally the stipules offer unusual characters. In both *Hydnophytum* and *Myrmecodia* the pubescence within the corolla may vary according to whether the stamens are included or exserted. In Vegetationsbilder 15 (Heft 7), Professor H. J. Lam has a richly illustrated article on the species of *Myrmecodia* and *Hydnophytum* which he collected on the van Overeem Expedition to New Guinea, 1920–21. This contains much general information. Unfortunately, so far as we have been able to learn, the descriptions of Lam's specimens have not yet been published. In conjunction with this paper we are publishing a plate of five photographs taken by Mr. L. J. Brass during his collecting trips; these give a limited idea of the variation of habitat and habit. In examining the specimens of *M. Lamii* and *M. Brassii,* we found two types of spines on different pieces of the tuberous base, and supposed we had mixed the material in sorting, but on appealing for help to Mr. Brass, we found that the two belonged to the same base; he sent us a photograph illustrating this, and it (in part) is reproduced in the plate.

Myrmecodia Antoinii Becc. Malesia 2: 116. *t. 19, figs. 2–4.* 1884; Hook. f. Bot. Mag. 123: *t. 7517.* 1897; F. M. Bail. Queensl. Fl. 3: 775. 1900, Queensl. Agric. Jour. 27: 66. *t. 18.* 1911.

Myrmecodia echinata sensu Antoine Oest. Bot. Zeitschr. 32: 347. *tab.* 1882, non Gaud.

BRITISH NEW GUINEA: Daru Island, Western Division, *Brass 6447,* April 1936, common epiphyte on savanna-forest trees; Tarara, Wassi Kussa River, *Brass 8670,* January 1937, common epiphyte in low savanna-forests.

This species was originally described from specimens collected on Thursday Island in Torres Straits. It has also been reported from Moa Island. Southern Papua is a logical extension of its range.

Myrmecodia tuberosa Jack, Trans. Linn. Soc. 14: 123. 1823; Becc. Malesia 2: 99. *t. 13, 14.* 1884?

BRITISH NEW GUINEA: Kanosia, *Carr 11517,* mangrove swamps, Feb. 1935 (epiphyte, ant-infested; flowers mostly white).

Although somewhat skeptical of the range of this species, this is more like the Malayan species than any other illustrated by Beccari. The specimen does not appear to have any flowers, and hence we are making only a provisional determination. Beccari gives the range of the species as Malay Peninsula, Sumatra, Borneo, and Java.

Myrmecodia Lamii sp. nov. PL. I, FIG. E.

Tuber usque ± 70 cm. longum et 40 cm. diametro, irregulariter costatum, spinosum, in parte inferiore ecostatum spinis crassiusculis in manipulis sparsis ± 6 mm. longis ornatum, in parte superiore spinis gracilibus simplicibus vel aggregatis vel a basi ramosis 7–22 mm. longis praeditum; caulibus 3–4.5 cm. diametro (cum spinis), versus apicem foliosis, clypeolatis; clypeolis 1.5 cm. longis, 1 cm. latis, ultra insertionem petioli spinas paucas gerentibus; stipulis magnis profunde bifidis, lobis elongatis 1.5–2 cm. longis divergentibus ad basin cum clypeolo ad latera connatis; foliis 8–22 cm. longis, 2–3.5(–6) cm. latis, oblanceolatis, apice abrupte acutis vel obtusiusculis, basi sensim in petiolum 1–3 cm. longum attenuatis, coriaceis, nervis lateralibus utrinsecus 8–10, supra manifestis, subtus prominulis, margine crispis vel recurvatis; alveolis interclypeolaribus marginibus radiculosis, radiculis brevibus ramosis; floribus in alveolis profunde nidulantibus; bracteis membranaceis involucratis, intus dense fuscis pilosis (filamentosis), pilis 4 mm. longis; calyce cupulari, 3 mm. longo, membranaceo, margine undulato vel leviter lobato; corollae tubo 7–8 mm. longo, intus glabro, lobis oblongis, 4 mm. longis, apice acutis, 1 mm. infra apicem uncinulatis; antheris 2.5 mm. longis, dorso infra medium affixis, in apice tubi insertis; disco profunde concavo; stylo 9 mm. longo; stigmate 4-lobato, lobis parvis; ovario 4-loculari; pyrenis subtrigono-compressis, 6 mm. longis, 1.5–2 mm. diametro, punctulatis.

NETHERLANDS NEW GUINEA: Lake Habbema, *Brass 9445* (TYPE), Aug. 1938, alt. 3225 m., abundant, characteristic, and very conspicuous large gouty epiphyte in open peaty communities, on *Libocedrus,* and on various trees in low mossy thickets, also terrestrial in shrubberies and grassy glades (tuberous base covered with erect bristles to over 2 cm. long, elongated, about 50–70 cm. long, 30–40 cm. in diameter, usually protruding at right angles with the host tree, upright and thicker in proportion to length when terrestrial; branches several from a common apex, up to about 1 m. long and 5 cm. in diameter; leaf-margins recurved, the midrib sharply keeled below; flowers white, the anthers blue); 9 km. northeast of Lake Habbema, *Brass 10689,* Oct. 1938, alt. 2800 m., common epiphyte, usually high on the branches of tall trees but coming down close to the ground on dead trees in clearings (leaves concave, the margins crinkled and recurved; flowers pale blue); Bele River, 18 km. northeast of Lake Habbema, *Brass 11554,* Nov. 1938, alt. 2200 m., a common epiphyte on trees along the river (leaves concave; flowers bluish white).

This species is readily distinguished from the others which superficially resemble it in habit by the very conspicuous stipules which have divergent tips and which, at the base, extend along the sides of the clypeoli, forming a somewhat wing-like margin; the spines on the clypeoli are variable in number, on younger ones sometimes two or three or a small cluster, or perhaps none. The flowers have a rather thick corolla which is glabrous within, whereas in most other species the corolla is thick in the upper part, becoming membranous in the lower part. The only species-description which we find even suggesting a relationship is that of *Myrmecodia longissima* Val., Bot. Jahrb. 61: 148. 1927; the latter, however, has leaves three times as large and different in outline, as well as different floral characters, the corolla-lobes being linear and the tube within provided with a ring of hairs near the base.

We have named this species for Professor H. J. Lam, who, we believe,

discovered it first. In Vegetationsbilder 15(Heft 7): *t. 37, 38, 40.* 1924, Professor Lam has given some excellent illustrations, but it seems rather unfortunate that some formal descriptions were not published in anticipation of the article or accompanying it; possibly these have been published, but, if so, we have not yet discovered the record.

Myrmecodia Brassii sp. nov. PL. I, FIG. A-C.

Tuber irregulare, versus apicem costatum, spinosum, in parte inferiore ecostatum spinis crassiusculis in manipulis sparsis ± 6 mm. longis ornatum, in parte superiore spinis numerosis gracilibus simplicibus saepe subaggregatis 6–13 mm. longis praeditum; caulibus (cum spinis) 3–4 cm. diametro, subobscure clypeolatis, clypeolis ± 10 mm. diametro, sursum consperse et margine dense spinosis, spinis simplicibus gracilibus, 7–15 mm. longis; stipulis intrapetiolaribus oblongis ad medium usque bifidis, novellis fere 1.5 cm. longis, maturitate apice caduco, parte relicta ± 5–7 mm. longa, obtusa, demum subreflexa; foliis 9–15 cm. longis, 1.5–3 cm. latis, oblanceolatis, apice acutis, basi sensim in petiolum 1–2 cm. longum attenuatis, coriaceis, nervis lateralibus utrinsecus 7–9, utrinque manifestis, obliquis; alveolis interclypeolaribus spinis clypeolorum plane obtectis; floribus in fundo alveolorum, bracteis intus pilosis involucratis; calyce cupulari truncato membranaceo, 3 mm. longo; corollae tubo (maturo 12 mm., in alabastro 8 mm. longo) intus circa medium et sub antheras annulato-piloso, inter antheras sparsim piloso, lobis 4 mm. longis, oblongis acutis, 1 mm. infra apicem membranaceo-uncinulatis; staminibus versus tubi apicem insertis, antheris in alabastro 2.5 mm. longis; disco concavo; stylo 6 mm. longo; stigmate 4–6-partito, lobis crasse linearibus vix 2 mm. longis; ovario 4–6-loculari.

NETHERLANDS NEW GUINEA: Lake Habbema, *Brass 9445* (TYPE), Aug. 1938, alt. 3225 m., associated with no. *9445*, often on the same tree, and very similar in general appearance, less common than no. *9445* and very seldom terrestrial (only two plants seen) (tuberous stem and branches gray-black, the branches very bristly; leaves concave, the margins not recurved, the midrib rounded below [before drying]; flowers white, the anthers blue).

Although the fineness of the spines, the similar leaf-outline, and the same general habit suggest *Myrmecodia Lamii,* the very fine slender spines or coarse bristles developed so abundantly on the stems or branches at once suggest a difference. The clypeoli are not nearly so obvious as in the other species, and the stipules are of the regular type, intrapetiolar, and at the base they do not appear to extend beyond the point of insertion of the petiole. The floral characters too are distinctive; the rather broad band of hairs at about the middle of the corolla-tube within and just below the stamens shows a tendency to extend upward between the anthers, while the stigmatic lobes are linear.

Myrmecodia sterrophylla sp. nov.

Tuber costatum, spinosum, spinis 5–15 mm. longis saepissime simplicibus; caulibus cum spinis circiter 4 cm. diametro, versus apicem foliosis, clypeolatis; clypeolis 10–13 mm. longis, 10 mm. latis, prope marginem dense spinosis, spinis 10(–15) mm. longis; stipulis lanceolatis, 1 cm. longis, profunde bifidis apice paulo divergentibus; foliis oblongo-lanceolatis, 14–27

cm. longis, 4–6 cm. latis, utrinque fere aequaliter angustatis, apice sensim acuminatis, basi in petiolum 2–5 cm. longum attenuatis, valde coriaceis, margine crispis planis, nervis lateralibus utrinsecus 8 vel 9 utrinque subprominulis; alveolis elongatis interclypeolaribus spinis clypeolorum obtectis; floribus seriatim in fundo alveolorum, bracteis intus pilosis involucratis; calyce (alabastro) 2 mm. longo, cupulari, truncato; corollae tubo infra stamina annulum tomentosum ferente; antheris 3 mm. longis; stigmate 6-lobato, lobis lineari-oblongis; fructibus oblongis; pyrenis 6, circiter 4 mm. longis.

NETHERLANDS NEW GUINEA: 15 km. southwest of Bernhard Camp, Idenburg River, *Brass 12138* (TYPE), Jan. 1939, alt. 1800 m., common as a high epiphyte in mossy forest (leaves somewhat concave, the margins crinkled; flowers white; fruit red).

Superficially this specimen very closely resembles *Brass 12047*, but the flowers definitely indicate a different species. In some ways it suggests *Myrmecodia longifolia* Val., but the leaves are clearly lanceolate and not somewhat long-acuminate.

Myrmecodia Archboldiana sp. nov.

Tuber costatum, dense spinosum, circiter 30 cm. longum, 16 cm. diametro; spinis 5–15 mm. longis e cortice stellatim fasciculatis vel interdum a basi ramosis vel simplicibus, gracilibus; caulibus (cum spinis) 2.5–4 cm. diametro, versus apicem foliosis, clypeolatis; clypeolis ± 10 mm. longis, 8–9 mm. latis, margine dense spinosis, spinis 1–2 cm. longis; stipulis ± 5 mm. longis cito caducis; foliis 20–29 cm. longis, 2.5–4 cm. latis, lineari-lanceolatis, apice acutis vel subacuminatis, basi sensim in petiolum 4–9 cm. longum attenuatis, tenuiter coriaceis, nervis lateralibus utrinsecus 12–15 supra manifestis interdum prominulis, subtus manifestis, margine planis; alveolis interclypeolaribus elongatis spinis clypeolorum plane obtectis; floribus in fundo alveolorum, bracteis involucratis verisimiliter intus glabris; calyce cupulari brevi truncato membranaceo 1–1.5 mm. longo; corollae tubo 16 mm. longo, intus glabro, versus basim 5 mm. membranaceo sursum crassiusculo; lobis 5 mm. longis, acutis, vix uncinulatis; staminibus in apice tubi insertis, antheris 3 mm. longis; disco plano; stylo 9 mm. longo; stigmate 2–4-lobato, lobis crassiusculis; ovario 2–4-loculari; pyrenis brevibus, circiter 3 mm. longis.

NETHERLANDS NEW GUINEA: Bele River, 18 km. northeast of Lake Habbema, *Brass 11216* (TYPE), Nov. 1938, alt. 2200 m., common on oaks in primary forest and also occurring on various trees in secondary forest (stock bottle-shaped, irregularly ridged and very spiny: typical example 30 × 16 cm.; petiole and midrib orange-colored; flowers white); 15 km. southwest of Bernhard Camp, Idenburg River, *Brass 12047*, Jan. 1939, alt. 1800 m., common epiphyte in mossy forest (petioles bright orange-red; flowers white).

This species may resemble *Myrmecodia longifolia* Val. somewhat in habit, but the spines on the tuberous stem are longer and tend to be fascicled or stellate from the base rather than short and simple; the leaves are different in outline; there do not appear to be any hairs or filaments in the bracts of the alveoli, and the flower is glabrous, the corolla lacking the common annular pilosity within.

Myrmecodia erinacea Becc. Malesia 2: 105. *t. 12, fig. 7–11*. 1884; Valeton, Nova Guin. 8: 514. 1911, Bot. Jahrb. 61: 145. 1927.

NETHERLANDS NEW GUINEA: Bernhard Camp, Idenburg River, *Brass 13934,* alt. 50 m., April 1939, common low epiphyte in flooded rain-forests of river-plain (leaves convex and much crinkled; flowers greenish blue).

The species has been reported twice for Netherlands New Guinea, once from the island of Japen, the other from southwestern New Guinea, both times growing on *Rhizophora;* this collection indicates that the species extends inland as well as occurring on the coast.

Myrmecodia prolifera sp. nov.

Tuber ecostatum, ± oblongum, usque 13 cm. longum et 5 cm. latum, spinosum; spinis prope basim ramosis, basi 1–1.5 mm. ramis 5 mm. longis, pungentibus; caulibus 1.2 cm. (cum spinis 3.5 cm.) diametro, spinis usque 2 cm. longis saepissime simplicibus interdum pauciramosis; clypeolis indistinctis vel confluentibus, spinis interdum sub basi petioli instructis; stipulis cito caducis; foliis 10–17 cm. longis, 1.5–4 cm. latis, oblanceolatis vel oblongo-spathulatis, apice subabrupte acutis vel breviter acuminatis, basi sensim in petiolum 2–4 cm. longum leviter alatum elongato-attenuatis, pergamaceis, nervis lateralibus utrinsecus 6–9 patenti-arcuatis, supra manifestis subtus prominulis, margine planis vel in sicco versus basim leviter revolutis; alveolis oblongis spinis densissime obtectis; bracteis intus glabris vel sparsim pilosis, involucratis; calyce brevi cupulari truncato circiter 1.5 cm. longo; corollae tubo in parte inferiore annulato-barbato; staminibus in apice tubi insertis; stylo circiter 7 mm. longo; stigmate 4-partito, lobis linearibus; fructibus ut videtur in alveolis germinantibus.

NETHERLANDS NEW GUINEA: Bernhard Camp, Idenburg River, *Brass 13935* (TYPE), April 1939, alt. 50 m., common in open swamp-forests of river-plains (leaves convex, petioles white; flowers greenish blue).

This species, in the outline of the leaves, the four linear stigmatic lobes, and the ring of hairs inside the corolla-tube, suggests *Myrmecodia alata* Becc. It lacks the costate character of the tuberous stem and has definitely branched spines on the tuber and occasionally forked or twice-branched spines on the stem; the clypeoli appear to be continuous or obliterated except for the leaf-scars; the stem-spines are mostly clustered according to the position of the alveoli.

Myrmecodia paucispina Val. Bot. Jahrb. 61: 150. 1927.

NETHERLANDS NEW GUINEA: Bernhard Camp, Idenburg River, *Brass 13829,* April 1939, alt. 50 m., epiphytic in open swamp forest, rare (tuberous stem irregularly ovoid). BRITISH NEW GUINEA: Auga River, Mafulu, *Brass 5496,* Nov. 1933, alt. 580 m., epiphytic on river-bank trees, common (large unevenly swollen tuberous base frequently lobed or branched, the surface swellings only armed with prickles around and amongst which are entrance holes into interior galleries inhabited by small black ants; leaf-bearing branches quadrangular; flowers and fruit in deep pits; flowers white; fruit elongated, pale yellow).

On account of the fragmentary material which Valeton had at his disposal, his description of this species is somewhat difficult to place, yet there are sufficient characters given so that we have hesitated to place this material elsewhere at present. The collections agree with the original in the following features: thick four-sided stem with short internodes, the midrib of the leaf decurrent to form a small wing down the stem (not obvious in all specimens but clearly distinct in some), the general outline

of the leaf, the practically naked branch, the fairly large uncinule of the corolla-lobes in bud, and the ring of hairs below the anthers. The specimens differ in having 4 pyrenes, and there are no small fascicled rootlets on the lower angles of the stem, nor are there any spines (Valeton does not say whether the spines are simple or branched) on the margins of the lower alveoli. There are occasional branched spines on the lower parts of the stem; the tuberous base has both single and branched spines but mostly branched, and in the latter the branches are often again branched, as in *Myrmecodia Albertisii* Becc., but the spines are somewhat coarser and more rigid. The leaves in these collections are about 12–28 cm. long, 4–8(–10) cm. broad, and strongly resemble that pictured by Beccari for *Myrmecodia alata*.

Myrmecodia Albertisii Becc. Malesia 2: 112. *t. 11.* 1884.

BRITISH NEW GUINEA: Wuroi, Oriomo River, *Brass 5848,* Feb. 1934, alt. 10–30 m., hanging from branches of savanna trees, abundant (a thick, often branched stem growing from an elongated large swollen and very spiny base [typical base 50 × 23 cm.]; flowers bluish white, fleshy; fruit pale yellow, 10 × 6 mm., soft); Lake Daviumbu, Middle Fly River, *Brass 7599,* Aug. 1936, plentiful on low trees of lake-shore (flowers bluish white); Tarara, Wassi Kussa River, *Brass 8580,* Dec. 1936, very common savanna-forest epiphyte (stems and tuberous base very thorny; flowers bluish white).

The last collection has the long-styled flower pictured by Beccari; the others have short-styled flowers, the band of hairs being about one-third the length of the tube above its base, and the stamens attached to the apex of the tube; there does not seem to be any other essential difference. We take this to be an example of heterostyly in this species.

Myrmecodia salomonensis Becc. Malesia 2: 175. *t. 53, fig. 1.* 1884; Guppy, The Solomon Islands and their Natives, 297. 1887; Valeton, Bot. Jahrb. 61: 150. 1927. PL. I, FIG. D.

SOLOMON ISLANDS: San Cristoval: Waimamura, *Brass 2585,* Aug. 1932, common, epiphytic on trees fringing rivers and the sea beach (pendulous under the branches of the host tree; lower tuberous part of stem elongated, marked with numerous small pits and tubercles; typical large specimen 45 cm. long, 16 cm. diameter at middle; leaf-bearing part of stem 60 cm. long, 4 cm. diameter, curved upward with a crown of thick glabrous leaves arranged in spirals [on account of the twisting of the stem]; corolla white, 4-angled, fleshy; a few young seedlings often rooting and growing in the bristly depressions between the leaf-rows; cavities in tuberous stem inhabited by colonies of small brown ants).

Beccari's original description is based on a leaf without a petiole, a fragment of a tuberous stem, and Guppy's notes. Guppy says the species is "noticed commonly on tall mangrove trees bordering the sides of streams in the lower part of their courses." Although the leaves of the specimen cited above are somewhat shorter (26 × 10–11 cm.) than that of the original, there can be little doubt that the two belong to the same species.

Clypeoli irregularly oblong, with spines mostly on the margins, the spines ± 10(–20) mm. long. Petioles ± 18 cm. long. Flowers in the alveoli between the clypeoli; calyx membranous, annular, 2 mm. long; corolla before anthesis 14 mm. long, 3.5 mm. diameter, within about 2 mm. above the base annular-villous, the lobes about 3 mm. long; anthers 2.5 mm. long; style 12 mm. long, the stigma indistinctly lobed; fruit 6-seeded.

Myrmecodia pendens sp. nov.

Tuber costatum spinosum, spinis 7–15 mm. longis, gracilibus, simplicibus vel interdum ramosis; caulibus (cum spinis) circiter 3.5 cm. diametro, versus apicem foliosis, indistincte clypeolatis; clypeolis sub insertionem petioli spinas 10–12 mm. longas gerentibus; stipulis ± 1 cm. longis, bifidis, intrapetiolaribus, lobis paulo divergentibus; foliis usque 20 cm. longis et 5 cm. latis, oblongo-oblanceolatis, versus apicem sensim acuminatis, basi sensim in petiolum usque 2 cm. longum attenuatis, pergamaceis vel tenuiter coriaceis, nervis lateralibus utrinsecus ± 11 utrinque subprominulis, venis interspersis; alveolis interclypeolaribus spinis clypeoli obtectis; bracteis intus pilosis involucratis; floribus in fundo alveolorum; calyce cupulari, 1 mm. longo, truncato; corollae tubo 1.3 cm. longo, 4 mm. supra basim dense annulato-piloso, lobis oblongis, ± 5 mm. longis, infra apicem 1 mm. uncinulatis; antheris in apicem tubi insertis, 3 mm. longis; disco plano; stylo circiter 9 mm. longo, stigmate indistincte lobato; ovario 4-loculari; fructibus elongatis; pyrenis 3–4 mm. longis.

BRITISH NEW GUINEA: Mafulu, *Brass 5401* in part (TYPE in Arnold Arb.), Nov. 1933, alt. 1250 m., lower primary forest junction with oak forest, i. e. upper edge of mixed rain-forest (upward of 50 plants pendent from branches of a tall tree; flowering plants 20 to 60 cm. long; tuberous base of largest plant 23 cm. long, 10 cm. greatest diameter, flanged and armed with prickles; leaves dark, smooth, with whitish midrib; flowers white; fruit orange-yellow, shining; smallest plant contained in upper cells a lining of soft white tissue — no ants; other plants inhabited by numerous small brown ants).

The two collections of this number which we have at hand show so much variation that it has seemed best at present to describe both as new species; unfortunately the other duplicates are unavailable for examination. The above type sheet consists of a leaf-bearing stem and a cross-section of a tuberous base; the latter is approximately 8 cm. in diameter, closely costate, and armed with slender, simple, and only very occasionally branched spines. The stem is about 15 cm. long, thickly beset with stouter simple spines and here and there spines with 1–3 branches. In the flower the stamens are at the apex of the tube, but the style is long enough so that the stigma is located in the midst of the opening anthers; the flowers examined have four locules. The other specimen (New York Bot. Gard.) has a tuberous base covered with branching spines; the stem also has branching spines around the alveoli forming a sort of protective cover, and the clypeoli are more or less confluent around the alveoli with occasional branching spines, but the stem does not give the impression of being densely spiny as in the other specimen; in the flower the anthers are low in the corolla-tube, and the style is just long enough to hold the stigma in the region of the anthers; the ovary is six-loculed and there are only very small tufts of hairs in the corolla below the stamens.

Myrmecodia pendula sp. nov.

Tuber costatum spinosum, oblongum, 15 cm. longum, 5 cm. diametro; spinis ramosis, basi 1–2 mm. longa, ramis 5–7 mm. longis; caulibus (cum spinis) 3 cm. diametro, versus apicem foliosis, clypeolis confluentibus consperse spinosis, spinis ramosis, ± 7 mm. longis; stipulis circiter 1 cm. longis cito caducis; foliis usque 11 cm. longis et 2.5 cm. latis, anguste oblanceo-

latis, apice acuminatis, basi sensim in petiolum 1.5 cm. longum attenuatis, tenuiter coriaceis, nervis lateralibus utrinsecus ± 8 supra manifestis, subtus inconspicuis, venis interspersis; alveolis breviter oblongis margine dense spinosis, spinis ramosis; floribus in fundo alveolorum; bracteis involucratis intus dense pilosis, pilis fuscis; calyce cupulari 3 mm. longo; corollae tubo 7 mm. longo, intus paulo infra stamina sparsim barbato; lobis fere 2 mm. infra apicem uncinulatis; staminibus in medio tubo insertis; stylo brevi; ovario 6-loculari; fructibus ovoideis; pyrenis ± 3 mm. longis.

BRITISH NEW GUINEA: Mafulu, *Brass 5491* in part (TYPE in New York Bot. Gard.), Nov. 1933, alt. 1250 m., lower primary forest junction with oak forest, i. e. upper edge of mixed rain-forest (upward of 50 plants pendent from branches of a tall tree; flowering plants 20–60 cm. long; tuberous base of largest plant 23 cm. long, 10 cm. greatest diameter, flanged and armed with branching prickles; leaves dark, smooth, with whitish midrib; flowers white; fruit orange-yellow, shining; smallest plant contained in upper cells a lining of soft white tissue — no ants; other plants inhabited by numerous small brown ants).

The distinctive characters of this species are the branching spines of both the tuberous base and the stem, the somewhat confluent clypeoli, the rather obviously uncinulate corolla-lobes, the bud tapering toward the apex, the anthers low in the tube, beneath them the very scanty tufts of hairs, the short style, and the 6-loculed ovary. Both *Myrmecodia pendens* and *M. pendula* were collected from the same branch and were intended to show variation; the photograph shows "detached plants hanging by the long roots by which they dangled in their treetop home."

Nertera Banks and Solander

Nertera granadensis (Mutis) Druce, Rep. Bot. Exch. Cl. Brit. Isles **1916**: 637. 1917.

Gomozia granadensis Mutis ex Linn. f. Suppl. 129. 1781.

Nertera depressa Banks & Solander ex Gaertn. Fruct. **1**: 124. *pl. 26*. 1788.

Nerteria depressa Smith, Ic. Ined. **2**: 28. *t. 28*. 1790.

Nertera depressa var. *papuana* Valeton, Bot. Jahrb. **61**: 156. 1927.

NETHERLANDS NEW GUINEA: 5 miles northeast of Wilhelmina-top, *Brass 9398*, alt. 3440 m., mossy banks of grassland stream; Lake Habbema, *Brass 9476*, alt. 3225 m., on mossy tree in edge of forest; 9 km. northeast of Lake Habbema, *Brass 10548, 10623*, alt. 2800 m., prostrate and creeping in stony bed of stream in forest, also creeping on log in native rest clearing; 15 km. southwest of Bernhard Camp, Idenburg River, *Brass 12392*, alt. 1500 m., creeping in moss on wet rocks of waterfall; Angi, Arfak Mountains, *Kanehira & Hatusima*, without field number, alt. 1900 m., April 1940, in mossy forest along the track from Momi to Lake Gita. BRITISH NEW GUINEA: Mount Tafa, *Brass 5020*, alt. 2400 m., common in open places on roadside banks. Fruit fleshy, red.

There is a good deal of variation in the leaf-outline of the collections included under this species. In view of the variations already admitted in the specific concept, it is questionable whether var. *papuana* is sufficiently distinct to maintain or not. The genus needs a monographer's careful study. This record is made to call attention to the earlier but less commonly used specific name. Sir James Smith's description was based on the specimen and manuscript of Mutis.

Nertera nigricarpa Hayata, Jour. Coll. Sci. Tokyo 25(Art. 19): 115. 1908, Icon. Plant. Formos. 7: 32. *pl. 6*. 1918.

NETHERLANDS NEW GUINEA: 5 miles northeast of Wilhelmina-top, *Brass 9397*, Aug.

1938, alt. 3440 m., mossy banks of grassland stream (fruit black, laterally compressed); 2 km. east of Wilhelmina-top, *Brass & Myer-Drees 10382,* Sept. 1938, alt. 3700 m., under shrub in wet rocky place (fruit black, glossy).

The New Guinean material is slightly smaller than that described from Formosa and the leaves are a little shorter-petiolate, but we believe that the collections belong in this species. All previous records have been from Mount Morrison, Formosa. This is the second genus which we have found common to these two regions, the other being *Stellaria* (*S. saxatilis* Buch.-Ham.), cf. Jour. Arnold Arb. 23: 386. 1942.

Borreria G. F. W. Meyer

Borreria Baileyana (Domin) comb. nov.

Spermacoce Baileyana Domin, Bibl. Bot. 22(Heft 89vii): 1182(628). 1929.

Spermacoce pogostoma Benth. var. *hispida* F. M. Bail. Bot. Bull. 4: 11. 1891 (Dept. Agric. Bull. no. 13).

BRITISH NEW GUINEA: Dagwa, Oriomo River, *Brass 5934,* Feb. 16, 1934, alt. 40 m., common on open grassy ridges (slender erect herb with pale purple flowers); Daru Island, *Brass 6388,* abundant grass associate in savanna forests (flowers white).

Although we have no material for comparison, these collections seem to agree reasonably well with the description of the collections from the Cape York Peninsula, Queensland, and such a range could very well be expected.

Borreria papuana (F. v. Muell.) comb. nov.

Spermacoce papuana F. v. Muell. Descr. Notes Papuan Pl. 1: 27. 1876.

BRITISH NEW GUINEA: Lake Daviumbu, Middle Fly River, *Brass 7540, 7817,* Aug. 1936, plentiful on savannas (flowers white); Tarara, Wassi Kussa River, *Brass 8572,* Dec. 1936, savanna forest, rare (flowers blue).

Valeton, Nova Guin. 8: 516. 1911, mentioned that this species belonged to *Borreria* but did not actually make the combination. The type of the species was collected on the Mai Kussa or Baxter River, so that the last cited collection might almost be considered a topotype. It is a rather distinct species with very long seta-like calyx-lobes and long corolla.

Borreria laevis (Lam.) Griseb. Fl. Brit. West Ind. 349. 1861; Merr. Philip. Jour. Sci. 60: 34. 1936.

Spermacoce laevis Lam. Tabl. Encycl. 1: 273. 1791.

NORTHEAST NEW GUINEA: Marienberg, Sepik River, *Herre 238,* May 1929, river-bank. NEW BRITAIN: Kokopo, *Herre 173,* April 1929, cultivated land near seashore.

A cosmopolitan weed apparently spreading rapidly. In addition to the range cited by Merrill, records have been listed from Fanning Island and Niue Island.

Borreria linearis sp. nov.

Planta prostrata; caulibus repentibus, basi suffrutescentibus, ramosis, tetragonis, internodiis 1–2 cm. longis; ramis erectis, internodiis 4–15 mm. longis, sub nodis interdum scabridulis; foliis sessilibus coriaceis linearilanceolatis, 5–10 mm. longis, 2 mm. latis, acutis, basi angustatis, margine revolutis, versus apicem consperse scabridulis, nervo medio supra impresso, subtus prominente; stipulis membranaceis puberulis, vaginantibus, margine interfoliaceo sursum arcuato, laciniis setosis 2–4 mm. longis, circiter 4–6 et

interdum brevioribus interjectis instructo; floribus glomerulatis, axillaribus et terminalibus; floribus et setoso-bracteis intermixtis; ovario obconico, 1 mm. longo, calycis lobis 4 linearibus, basi puberulis; corolla infundibuliformi, 2 mm. longa, tubo glabro, lobis obtusis, brevibus, 0.5 mm. longis, staminibus in apice tubi insertis; stylo glabro; stigmate bidentato; fructibus 1.5 mm. longis, leviter latioribus; calycis lobis persistentibus coronatis; seminibus 1 mm. longis, oblongis, brunnescentibus, minute punctulatis.

British New Guinea: East Mount Tafa, *Brass 4067* (type), May 1933, alt. 2350 m., common on a small burnt-over clearing in mossy forest (small prostrate plant with white flowers). Northeast New Guinea: On the ridges of Finisterre Mountain, *Schlechter 18224,* Sept. 1908, alt. 1200 m.

This species has been taken for *Borreria brachystema* (R. Br.) Val., but the latter has the stamens "on very short filaments at the base of the tube," whereas in *B. linearis* the stamens are inserted at the orifice of the corolla-tube and alternate with its lobes. There is very little pubescence on the plant, the stipular sheath being usually covered with minute hairs and often the region just below the node, but if this is glabrous usually the elevated lines which run down the angles of the stem are pubescent in the vicinity of the nodes. The upper part of the fruit is often sparsely pubescent as well as the lower part of the calyx. Although cystoliths are not visible in the dried plant, when a small part has been thoroughly soaked in water the lower surface of the leaves and sometimes the flowers show the presence of cystoliths; they are also present on the inner face of the seed.

Borreria lanceolata sp. nov.

Planta erecta, basi suffrutescens; caulibus ramosis, tetragonis, internodiis 1–2.5 cm. longis glabris; foliis subsessilibus subcoriaceis, lanceolatis 7–15 mm. longis, 2–3 mm. latis, apice acutis, basi rotundatis, margine revolutis, utrinque glabris, nervo medio supra impresso, subtus prominente fere carinato; nervis lateralibus utrinsecus 3 vel 4, supra obscuris, subtus inconspicuis; stipulis membranaceis puberulis, vaginantibus, margine interfoliaceo sursum arcuato, laciniis setosis 2–3 mm. longis, circiter 6 instructo; floribus glomerulatis, axillaribus et terminalibus, floribus et setoso-bracteis intermixtis; ovario obconico pubescente, 1 mm. longo; calycis lobis 4 lineari-lanceolatis ciliolatis, versus basim pubescentibus; corolla infundibuliformi, tubo extus puberulo, intus glabro, lobis obtusis circiter 0.8 mm. longis intus puberulis; staminibus in apice tubi insertis; stylo glabro; stigmate bidentato; fructibus 1.5 mm. longis, calycis lobis persistentibus coronatis (incl. calyce 3 mm. longis); seminibus 1 mm. longis, oblongis, brunnescentibus, minute punctulatis.

Netherlands New Guinea: Balim River, *Brass 11644, 11737* (type), Dec. 1938, alt. 1600 m., deforested slopes, stony grassland (flowers white).

Borreria lanceolata is closely related to *B. linearis;* it differs in its erect habit, lanceolate leaves, and slightly larger flowers with corolla-lobes definitely pubescent on the upper surface. The laciniae of the stipules do not appear to be quite so long as in the related species, and there is no sign of pubescence on the leaves; whether these differences are brought about by differences in altitude would be difficult to determine without further collections.

Mitracarpus Zuccarini[1]

Mitracarpus hirtus DC. Prodr. 4: 572. 1830?

Mitracarpus villosus (Sw.) DC. Prodr. 4: 572. 1830 (as *Mitracarpum villosum*); Fawcett & Rendle, Fl. Jamaica 5: 127. *fig. 39*. 1936.

BRITISH NEW GUINEA: Laloki River, Rona, *Brass 3559,* March 1933, alt. 450 m., common grassland herb; Kanosia, *Carr 11043,* open places, sea-level.

This is the plant currently passing as *Mitracarpus hirtus* (L.) DC. in the herbarium and in literature, although de Candolle does not make any reference to Linnaeus' species. Both *M. hirtus* and *M. villosus* (as *Mitracarpum hirtum* and *M. villosum*) were based on Swartz's species, and both were from Jamaica, in the West Indies. It is a little puzzling to try to understand why Fawcett and Rendle entirely ignored the disposition of *M. hirtus* in accepting *M. villosus,* in view of the fact that both were described from Jamaica and the former occupies fully as much space in literature as the latter, if not more.

EXPLANATION OF PLATE I

FIG. A. *Myrmecodia Brassii* Merr. & Perry (*Brass 9446*), epiphytic on *Podocarpus compacta* Wasscher; showing the two types of spines on the tuberous base. FIGS. B, C. *M. Brassii,* epiphytic on *Libocedrus.* FIG. D. *M. salomonensis* Becc. (*Brass 2585*), detached from host tree, but showing pendent habit. FIG. E. *M. Lamii* Merr. & Perry (*Brass 9445*), growing terrestrially on bare sandstone.

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[1] For the benefit of other workers who may be as curious as ourselves to learn why the generic name first appears in botanical publications as *Mitracarpum* Zucc., and later as *Mitracarpus* Zucc., we append the following reference: A Gray, Synopt. Fl. North America 1(2): 32. 1884.